

Part No. 208963-B
March 2001

4401 Great America Parkway
Santa Clara, CA 95054

Using Optivity Switch Manager Release 1.1.0.0

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Preface

Optivity Switch Manager is a Java-based graphical network management application used to configure and manage select Passport and BayStack switches and Business Policy Switch 2000 switches operating within the same local area network.

This guide provides information about installing the Optivity Switch Manager software and using the features and capabilities of Optivity Switch Manager's graphical user interface (GUI).

Before you begin

This guide is intended for network administrators with the following background:

- Working knowledge of networks and Ethernet bridging
- Ability to configure and troubleshoot VLANs, STGs, MLTs, and Multicast groups
- Familiarity with networking concepts and terminology
- Working knowledge of GUIs

Text conventions

This guide uses the following text conventions:

bold Courier text	Indicates command names and options and text that you need to enter. Example: Use the dinfo command. Example: Enter show ip {alerts routes} .
<i>italic text</i>	Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is <code>show at <valid_route></code> , <i>valid_route</i> is one variable and you substitute one value for it.
plain Courier text	Indicates command syntax and system output, for example, prompts and system messages. Example: <code>Set Trap Monitor Filters</code>
separator (>)	Shows menu paths. Example: <code>Protocols > IP</code> identifies the IP option on the Protocols menu.

Related publications

For more information about the protocols used in Optivity Switch Manager or information about using Device Manager, refer to the publications in this list.



Note: The Passport product line was formerly named Accelar. The product name on some previously published documents has not yet been changed.

- *Networking Concepts for the Accelar 1000 Series Routing Switch Software Release 2.0* (part number 205588-A)
Provides general information and description of how the Passport 1000 Series switch handles various networking features, such as VLANs, MultiLink Trunking, OSPF, RIP, and IPX.
- *Installing Optivity Switch Manager for LAN Switch Networks 1.0.0.0* (part number 210274-A)
Describes the steps necessary to install Optivity Switch Manager on the Windows and Solaris platforms.
- *Networking Concepts for the Passport 8000 Series Switch* (part number 207307-C)
Provides general information and description of how the Passport switch handles various networking features, such as VLANs, MultiLink Trunking, OSPF, RIP, and IPX.
- *Reference for the Passport 8000 Series Command Line Interface Basic Switch Management Release 3.1* (part number 211255-A)
Describes the command line interface (CLI) structure and the commands used to perform basic switch management operations, such as modifying the switch boot sequence, working with switch files, and setting up security features.
- *Reference for the Passport 8000 Series Command Line Interface Switching Operations Release 3.1* (part number 207308-D)
Describes the CLI commands and parameters for switching operations. Most configuration tasks that can be performed using Device Manager can also be done using the CLI.
- *Reference for the Passport 8000 Series Command Line Interface Routing Operations Release 3.1* (part number 208967-C)
Describes the CLI commands and parameters for routing operations.
- *Reference for Accelar Management Software Switching Operations Release 2.0* (part number 205586-A)
Describes how to use Device Manager to configure and manage layer 2 (switching) functions with the Accelar 1000 Series routing switch, including procedures and illustrations of pertinent screens.

- *Reference for Accelar Management Software Routing Operations Release 2.0* (part number 205587-A)
Describes how to use Device Manager to configure and manage layer 3 (routing) functions with the Accelar 1000 Series routing switch, including procedures and illustrations of pertinent screens.
- *Reference for the Passport 8000 Series Management Software Switching Operations Release 3.1* (part number 207414-D)
Describes how to use Device Manager to configure and manage layer 3 (routing) functions with the Passport routing switch, including procedures and illustrations of pertinent screens.
- *Reference for the Passport 8000 Series Management Software Routing Operations Release 3.1* (part number 207415-C)
Describes how to use Device Manager to configure and manage layer 2 (switching) functions with the Passport 8000 Series switch, including procedures and illustrations of pertinent screens.
- *Reference for the BayStack 350/410/450 Management Software Operations Version 3.1* (part number 210245-B)
Describes how to use Device Manager to configure and manage layer 2 (switching) functions with BayStack switches, including procedures and illustrations of pertinent screens.

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Chapter 1

Introducing Optivity Switch Manager

This chapter introduces Nortel Networks Optivity Switch Manager features and functions. The chapter includes the following topics:

- [What is Optivity Switch Manager?](#) (next)
- [Optivity Switch Manager features](#) (page 24)
- [Optivity Switch Manager submanagers](#) (page 24)

What is Optivity Switch Manager?

Optivity Switch Manager is a Java-based network management application that allows you to discover and view up to 100 network devices and their physical links on a topology map. Once your network is discovered, you can monitor, manage, and configure protocols and settings in devices in the network using the following submanagers within Optivity Switch Manager:

- [VLAN Manager](#)
- [MultiLink Trunking Manager](#)
- [Multicast Manager](#)
- [Log Manager](#)

In addition to these submanagers, Optivity Switch Manager has an associated standalone application, [Device Manager](#), that provides the ability to completely configure and manage a single device in the network.

Optivity Switch Manager allows you to manage small to medium-size networks. Since Optivity Switch Manager is a Java-based tool, it is platform-independent. Optivity Switch Manager is also a real-time SNMP tool, allowing you to save the topology map, error log, preferences, and communities in the application.

To use Optivity Switch Manager, you must have the Java Runtime Environment (JRE) installed on your system. Optivity Switch Manager requires JRE 1.3.



Note: For a description of operating systems, devices, and software releases supported by Optivity Switch Manager, see *Installing Optivity Switch Manager, Release 1.1.0.0*.

Optivity Switch Manager features

Optivity Switch Manager is a configuration tool for troubleshooting and limited network monitoring. It has the following features:

- A consistent look across the Solaris and Windows platforms.
- Spring algorithm that balances distances between devices and minimizes crossing lines when creating the topology map.
- A consistent graphical user interface (GUI) across Optivity Switch Manager and submanagers and a single point of access to the submanagers.
- Dynamic system updates across submanagers. You can simultaneously query your device in a submanager application as you view the topology map through Optivity Switch Manager.
- Access control and security using community strings.
- Network discovery that you can specify to be as large or small as you want.
- Ability to save the layout of a discovered network for future use.

Optivity Switch Manager submanagers

Optivity Switch Manager incorporates submanagers that provide detailed device information and management capabilities. The submanagers are designed to provide specialized information in an easy-to-use graphical user interface that is consistent in layout across the submanagers. A submanager can query Optivity Switch Manager and instruct the primary application to update the topology view with information relevant to the submanager view. For example, VLAN Manager can instruct Optivity Switch Manager to color all the devices in the view that include members of a particular VLAN.

The submanagers open in a separate window from Optivity Switch Manager. You must have the Optivity Switch Manager window open to access all the submanagers except Device Manager. The submanagers are:

- [VLAN Manager](#)
- [MultiLink Trunking Manager](#)
- [Multicast Manager](#)
- [Log Manager](#)
- [Device Manager](#)

VLAN Manager

VLAN Manager allows you to:

- Create, delete, or modify VLANs across one or multiple devices
- View VLAN information, membership, and port configuration information in tabular format
- View Spanning Tree Protocol information such as members of spanning tree groups (STGs) and Spanning Tree Protocol configuration
- View VLAN nodes across the network

For more information about VLAN Manager, refer to [Chapter 4, “Using VLAN Manager,”](#) on page 55.

MultiLink Trunking Manager

MultiLink Trunking Manager allows you to:

- Create, delete, or modify MultiLink Trunks (MLTs) across one or two devices
- View MLT configuration information such as port and VLAN membership

For more information about MultiLink Trunking Manager, refer to [Chapter 5, “Using MultiLink Trunking Manager,”](#) on page 99.

Multicast Manager

Multicast Manager allows you to:

- View multicast configuration and protocols found in the network
- Display multicast forwarding paths from a selected source or group

For more information about Multicast Manager, refer to [Chapter 6, “Using Multicast Manager,”](#) on page 121.

Log Manager

Log manager allows you to download individual log files from network devices and view the entire file or selected information.

For more information about Log Manager, refer to [Chapter 7, “Using Log Manager,”](#) on page 165.

Device Manager

Device Manager is a standalone application that you can launch either from Optivity Switch Manager or separately. This application allows you to:

- Download image and configuration files
- Completely manage and configure layer 2 and, if applicable, layer 3 protocols and features for a single network device
- Monitor traffic flow through the device
- View a device image indicating which ports are active and, for Passport switches, which modules are installed

For more information about Device Manager, refer to the documents listed in [“Related publications”](#) on page 18.

Chapter 2

Using Optivity Switch Manager

This chapter describes the basic procedures for using Optivity Switch Manager. For information about how to install Optivity Switch Manager, refer to *Installing Optivity Switch Manager, Release 1.1.0.0*.

This chapter includes the following topics:

- [Starting Optivity Switch Manager](#), next
- [Using the Optivity Switch Manager window](#) (page 29)
- [Working with the network topology map](#) (page 41)
- [Getting help](#) (page 46)

Starting Optivity Switch Manager

After you install Optivity Switch Manager, you can start the application.

To start Optivity Switch Manager:

➔ Do one of the following:

- From the Windows 95, Windows 98, Windows 2000, or Windows NT Start menu, choose Programs > Nortel Optivity Switch Management Software > Optivity Switch Manager.
- In a Windows environment, double-click the Optivity Switch Manager shortcut icon on your desktop, if it is present.
- In a Solaris terminal window, enter `./OSM` in the location where Optivity Switch Manager has been installed.

Optivity Switch Manager starts.

You do not need a password to open the application. However, to discover and display a network topology, you need to enter an IP address to a device that will act as a “seed,” and you must have permission to access that “seed” device. Refer to [“Discovering devices on a network” on page 48](#) for more information.

Using the Optivity Switch Manager window

The Optivity Switch Manager window:

- Displays a logical map of a network showing physical connectivity between devices.
- Provides tools to access other Optivity Switch Manager features.
- Allows you to launch Optivity Switch Manager submanagers.

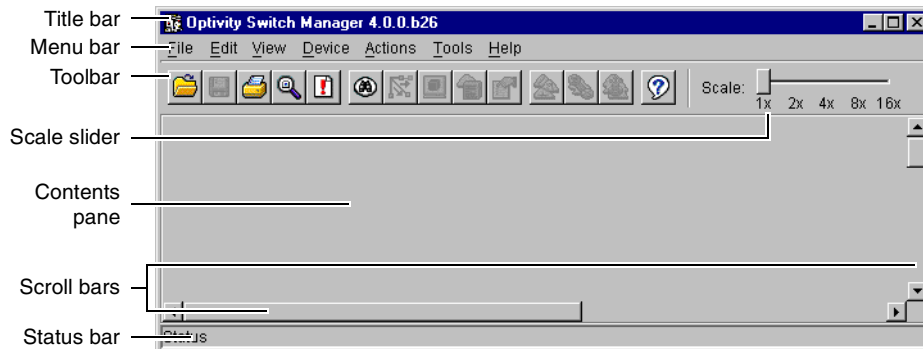
After the initial discovery, other Optivity Switch Manager submanager applications allow you to monitor or configure discovered devices.



Note: The Optivity Switch Manager window remains open and can display highlighted devices after the Optivity Switch Manager submanager windows open. If you close the Optivity Switch Manager window while Optivity Switch Manager submanager windows are open, the submanagers also close.

Figure 1 shows the Optivity Switch Manager window.

Figure 1 Optivity Switch Manager window



[Table 1](#) describes the parts of the Optivity Switch Manager window.

Table 1 Parts of the Optivity Switch Manager window

Part	Description
Title bar	Displays the application name and software version.
Menu bar	Provides access to all Optivity Switch Manager commands.
Toolbar	Provides quick access to commonly-used Optivity Switch Manager commands.
Scale slider	Provides four zoom levels to magnify the network topology map.
Contents pane	Displays the network topology map.
Scroll bars	Provide access to an entire map, table, or other text that spans two pages in the contents pane.
Status bar	Displays status information and the map legend.

When you successfully [query a device on the network](#), the Optivity Switch Manager contents pane presents a logical map of the network displaying a variety of information about the network connections. The specific information available on the network topology map depends on the size of the network discovered. For example, in a very large network topology, the device IP addresses and port numbers are not displayed unless you magnify the network topology map using the scale slider.

Optivity Switch Manager menu bar

The menu bar provides menus and commands for operating Optivity Switch Manager and for accessing Device Manager, VLAN Manager, MultiLink Trunking Manager, Multicast Manager, and Log Manager. [Table 2](#) lists the Optivity Switch Manager menus and commands.

Table 2 Optivity Switch Manager menus and commands

Menu	Command	Shortcut keys	Description
File	Open	[Ctrl]+O	Opens a topology map.
	Save	[Ctrl]+S	Saves a topology map.
	Print	[Ctrl]+P	Opens the Print dialog box, where you set print parameters.
	Exit	[Ctrl]+Q	Exits Optivity Switch Manager.
Edit	Communities		Edits SNMP communities accessible by Optivity Switch Manager. Refer to “Accessing devices within different SNMP communities” on page 53 for more information.
	Preferences		Edits network preferences and identifies seed addresses used by Optivity Switch Manager. Refer to Chapter 3, “Configuring Optivity Switch Manager,” on page 48 for more information.
	Clear Map	[Del]	Deletes the current network topology displayed in the contents pane.
	Find Device in Map	[Ctrl]+F	Opens the Find Device dialog box, where you set parameters to find a device in the topology map.
	Select All		Selects all devices within a supported product family (Passport 1000 Series switches, Passport 8000 Series switches, or BayStack switches).
View	Link Speeds		Displays network link speeds in color on the network topology map. The status bar provides a color legend for the link speeds (refer to “Optivity Switch Manager status bar” on page 38).
	Link Duplex		Displays half- and full-duplex links in color on the network topology map. The status bar provides a color legend for the link duplex status (refer to “Optivity Switch Manager status bar” on page 38).
	Link Types		Displays the media type (Ethernet, POS, or ATM) in color for the links in the network topology map. The status bar provides a color legend for the link types (refer to “Optivity Switch Manager status bar” on page 38).
	MultiLink Trunks		Displays MultiLink Trunks discovered in the network topology.
	Show Port Address		Displays IP addresses of isolated routing ports or brouter ports.
	Error Log		Displays the error log for Optivity Switch Manager. You can save the error log to a text file.

Table 2 Optivity Switch Manager menus and commands (continued)

Menu	Command	Shortcut keys	Description
Device	Telnet		Starts a Telnet session.
	Ping		Pings a device to test connectivity.
	Device Manager		Launches Device Manager to monitor and configure the selected device.
	Properties		Displays the properties of the selected device. Refer to “Using the Optivity Switch Manager shortcut menu” on page 34 for a description of this feature.
	Report		Opens the Report dialog box, which displays the device IP address, name, type, and description.
	Dump Topology to Log		Dumps the current topology to the log.
	Note: This menu is accessible only if a device is selected on the network map displayed in the Optivity Switch Manager Contents pane		
Actions	Discover Map		Discovers a network topology map.
	Layout Map		Rearranges a topology map for better viewing.
	Find Unsaved Configurations		Opens the Find Unsaved Configurations dialog box that lists the devices with unsaved changes in their configuration files. The dialog box contains the device IP address, the time/date when the configuration was last changed, and the time/date when the device’s configuration was last saved.
	Log Manager		Opens Log Manager. Refer to Chapter 7, “Using Log Manager,” on page 165 , for more information about this application.
Tools	VLAN Manager	[F2]	Opens VLAN Manager. Refer to Chapter 4, “Using VLAN Manager,” on page 55 , for more information about this application.
	MultiLink Trunking Manager	[F3]	Opens MultiLink Trunking Manager. Refer to Chapter 5, “Using MultiLink Trunking Manager,” on page 99 , for more information about this application.
	Multicast Manager	[F4]	Opens Multicast Manager. Refer to Chapter 6, “Using Multicast Manager,” on page 121 for more information about this application.

Table 2 Optivity Switch Manager menus and commands (continued)

Menu	Command	Shortcut keys	Description
Help	Contents	[F1]	Opens a Web browser application and loads Help files.
	Online Support		Opens a Web browser that loads the Nortel Networks Customer Support Web page.
	Legend		Displays a key to the icons used in the Optivity Switch Manager topology map.
	About Optivity Switch Manager		Displays Optivity Switch Manager application information.

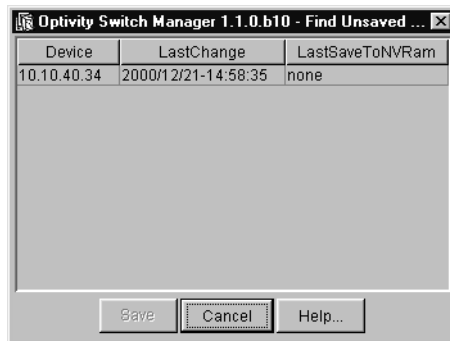
Finding unsaved configurations

You can find devices that have unsaved configuration files or changed configuration files.

To find unsaved configuration files:

- ➔ From the Optivity Switch Manager menu bar, choose Actions > Find Unsaved Configurations.

The Find Unsaved Configurations dialog box opens ([Figure 2](#)).

Figure 2 Find Unsaved Configurations dialog box

[Table 3](#) describes the items in the Find Unsaved Configurations dialog box.

Table 3 Find Unsaved Configurations dialog box items

Item	Description
Device	The IP address, system name, or host name of the device.
LastChange	The date and time when the device's configuration was last changed.
LastSavedToNVRam	The date and time when the device's configuration was last saved. If the device's configuration was never saved, this text box reads "none."

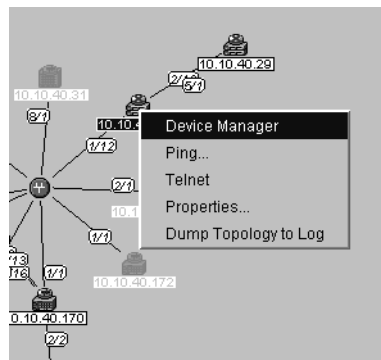
Using the Optivity Switch Manager shortcut menu

Use the shortcut menu (Figure 3) to start device-related tasks for a selected device. The shortcut menu commands are similar to those found in the Device menu and include launching the standalone Device Manager application.

To access the shortcut menu:

- ➔ Right-click a device on the topology map to open the shortcut menu.

The shortcut menu opens (Figure 3).

Figure 3 Shortcut menu

Viewing device properties

When you choose Properties from the shortcut menu, you can view properties for the selected device. The Device Properties dialog box (Figure 4) includes the name, type, and location of the device, if that information was entered in the device's configuration. The bottom of the Device Properties dialog box shows the port status of the device.

Figure 4 Device Properties dialog box

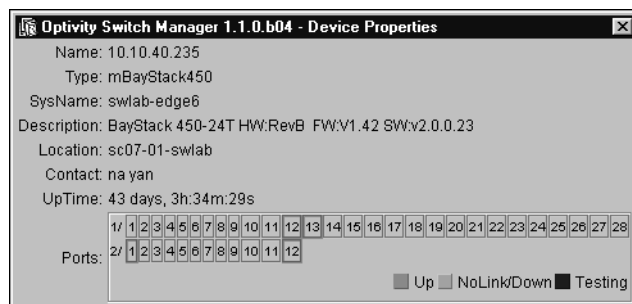


Table 4 describes the items in the Device Properties dialog box.

Table 4 Device Properties dialog box items

Item	Description
Name	The IP address, system name, or host name of the device.
Type	The chassis type.
SysName	The name of the device.
Description	The system-assigned name.
Location	The physical location of the device.
Contact	The contact information for the system administrator. This item reflects the contact information entered as part of the system information for this device in Device Manager.
UpTime	The time elapsed since the device was last booted.
Ports	The device's port status. The color of the box representing each port indicates if the port is up (green), has no link (is down) (orange), or is being tested (blue).

Using the toolbar buttons

The toolbars for Optivity Switch Manager, VLAN Manager, MultiLink Trunking Manager, Log Manager, and Multicast Manager are located beneath their respective menu bars. The toolbar buttons provide quick access to commonly used commands. When a toolbar button is unavailable for a particular configuration or submanager, it appears dimmed.

When you point to a button, the name of the button and a description of the command function are displayed.

[Table 5](#) describes the toolbar buttons for Optivity Switch Manager and the submanagers.

Table 5 Optivity Switch Manager and submanager toolbar buttons








Button	Name	Description	Application
	Open	Opens a topology map or log file.	Optivity Switch Manager, Log Manager
	Save	Saves a topology map or log file.	Optivity Switch Manager, Log Manager.
	Print	Prints the topology map. Note: The application does not paginate the map, that is, break the map printing into several pages. To print a portion of the map, ensure that the portion is visible in the window at the desired zoom level.	Optivity Switch Manager, VLAN Manager, MultiLink Trunking Manager, Multicast Manager, Log Manager.
	Find	Allows you to find a device by IP address, a VLAN by name, an MLT by IP address, or a multicast group by address. Refer to “Finding a device in the topology map” on page 44 for more information.	Optivity Switch Manager, VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	View Error Log	Displays the Optivity Switch Manager error log.	Optivity Switch Manager
	Discover Network	Discovers a seed address in a network. Refer to “Discovering devices on a network” on page 48 for more information.	Optivity Switch Manager
	Stop Discovery	Stops the discovery process. Note: This button is available only while discovery is in process.	Optivity Switch Manager

Table 5 Optivity Switch Manager and submanager toolbar buttons (continued)

















Button	Name	Description	Application
	Layout map	Lays out the topology map for better readability.	Optivity Switch Manager
	Log Manager	Starts the Log Manager submanager	Optivity Switch Manager
	Telnet	Opens a Telnet session in a separate window.	Optivity Switch Manager
	Device Manager	Starts the Device Manager submanager.	Optivity Switch Manager
	Show Device Properties	Displays the device properties of a particular device on the discovered network.	Optivity Switch Manager
	VLAN Manager	Starts the VLAN Manager submanager.	Optivity Switch Manager
	MultiLink Trunking Manager	Starts the MultiLink Trunking Manager submanager.	Optivity Switch Manager
	Multicast Manager	Starts the Multicast Manager submanager	Optivity Switch Manager
	Help	Opens online Help.	Optivity Switch Manager, VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	Reload	Reloads the current submanager folder information. Note: Use this function often to ensure that the displayed data is the most recent.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	Insert	Displays the Insert dialog box to add a VLAN, STG, or MLT.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	Delete	Deletes a selection.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	Apply Changes	Applies changes you have made to the configuration.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager

Table 5 Optivity Switch Manager and submanager toolbar buttons (continued)

Button	Name	Description	Application
	Undo Changes	Undoes changes you have made to the configuration <i>if</i> you have not already clicked Apply Changes.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager
	Copy	Copies highlighted information.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager, Log Manager
	Paste	Pastes highlighted information.	VLAN Manager, MultiLink Trunking Manager, Multicast Manager

Optivity Switch Manager status bar

The Optivity Switch Manager status bar is at the bottom of the Optivity Switch Manager main window (see [Figure 1 on page 29](#)). [Table 6](#) describes the fields in the status bar.

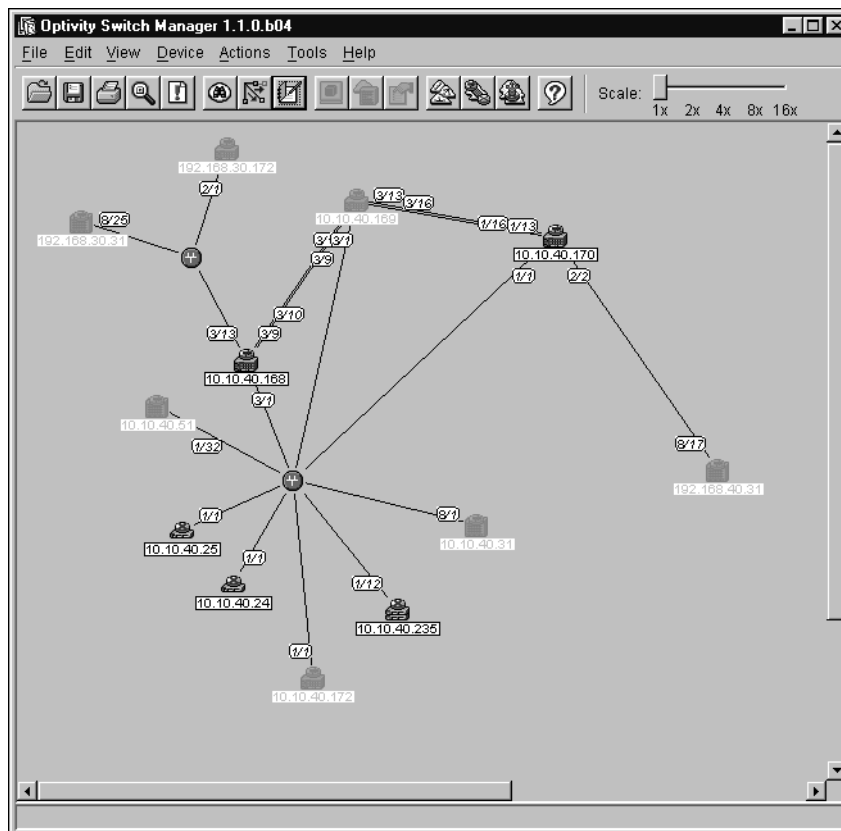
Table 6 Status bar fields

Field	Description
Message	Located on the left, the message field displays information about: <ul style="list-style-type: none"> • Menu commands and toolbar buttons • Optivity Switch Manager and submanager operations
Icon	Located on the right, the icon field displays a legend for color-coded information of Optivity Switch Manager and submanagers. Depending on what selections are made from the View menu, this legend shows the following information for Optivity Switch Manager: <ul style="list-style-type: none"> • Link Speeds—10Mb/s (pink), 100Mb/s (blue), or 1Gb/s (red) • Link Duplex—Half-duplex (blue) or full duplex (red) • Link types—Ethernet (blue), POS (red), or ATM (green) If none of these items is selected from the View menu, this field is blank.

Optivity Switch Manager contents pane icons

After you query a device's seed address, the topology map opens in the Optivity Switch Manager contents pane (Figure 5).

Figure 5 Optivity Switch Manager topology map










The Optivity Switch Manager topology map uses icons to represent the types of network devices discovered. Some of the devices are supported by Optivity Switch Manager; others are not supported but connect supported devices.

To access a legend with these icons and their names:

➔ From the Optivity Switch Manager menu bar, choose Help > Legend.

Table 7 describes the device icons.

Table 7 Device icons

Icon	Name	Description
	Bus	Network bus or hub not supported by Optivity Switch Manager or its submanagers. You can view ports connected to BayStack or Passport switches by choosing View > Show Port Address.
	Passport 1K	Passport 1000 Series switch. This device can be configured and monitored by Optivity Switch Manager and its submanagers.
	Passport 8K	Passport 8000 Series switch. This device can be configured and monitored by Optivity Switch Manager and its submanagers.
	BayStack or Business Policy Switch 2000	BayStack 350, 410, or 450 switch or Business Policy Switch 2000. This device can be configured and monitored by Optivity Switch Manager and its submanagers.
	Baystack (old)	Baystack 310 switch. This device is partially supported by Optivity Switch Manager and its submanagers.
	Other switch	A switch not supported by Optivity Switch Manager or its submanagers.
	Other router	A router not supported by Optivity Switch Manager or its submanagers.

Adjusting the contents pane

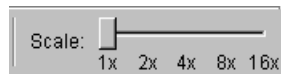
You can resize the Optivity Switch Manager window or submanager windows by dragging the edges of the active window. You can also use the scroll bars to adjust the Optivity Switch Manager contents pane to view a specific portion of the discovered network topology.

Using the scale slider

To adjust the scale of the topology map:

- Move the scale slider (Figure 6) to the right to magnify the map or to the left to make it smaller.

Figure 6 Scale slider



You can display the map up to sixteen times larger.



Note: Use Edit > Find Device in Map to easily locate the device before you resize the specific region of the map.



Note: When you use Optivity Switch Manager in a Solaris environment, you can click the number in the scale slider or drag the slider.

Working with the network topology map

After a network topology map is loaded into the Optivity Switch Manager contents pane, you can save it and reload it.

Loading a saved network topology map

You can reload a saved topology map. If you do not have a specific topology map saved, the application loads the previously saved topology map. This map is stored in the default.topo file.



Note: Optivity Switch Manager Release 1.1.0.0 cannot open topology maps saved in earlier releases.

To open a new topology map, you must use the discovery process described in [“Discovering devices on a network” on page 48](#).

To reload a saved topology map:

- 1 Do one of the following:
 - From the Optivity Switch Manager menu bar, choose File > Open.
 - On the keyboard, press [Ctrl]+O.
 - On the Optivity Switch Manager toolbar, click Open.

The Open File dialog box opens ([Figure 7](#)).

Figure 7 Open File dialog box



- 2 Select the filename (with a .topo extension) that contains your saved network topology.

3 Click Open.

The topology map is displayed in the contents pane.

4 From the Optivity Switch Manager menu bar, choose Actions > Update Topology to update your network topology map.

Saving a topology map

When you save a topology map, it is stored with a .topo file extension. If you do not save a topology with a specific file name, Optivity Switch Manager attempts to save the current map to the default.topo file.

To save a topology map with another name:

1 Do one of the following:

- From the Optivity Switch Manager menu bar, choose File > Save.
- On the keyboard, press [Ctrl]+S.
- On the Optivity Switch Manager toolbar, click Save.

The Save dialog box opens (Figure 8).

Figure 8 Save dialog box

**2** Type the file name with a .topo file extension.**3** Click Save.

Printing a topology map

To print a topology map:

→ Do one of the following:

- From the Optivity Switch Manager menu bar, choose File > Print.
- On the keyboard, press [Ctrl]+P.
- On the Optivity Switch Manager toolbar, click Print.



Note: Optivity Switch Manager prints only a single page showing the part of the topology map that starts at the left border of the window. To print a portion of the map, ensure that the portion is next to the left border of the window at the desired zoom level.

Finding a device in the topology map

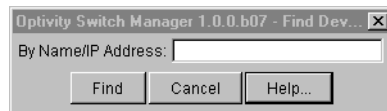
To locate a device in the network topology map:

1 Do one of the following:

- From the Optivity Switch Manager menu bar, choose Edit > Find Device in Map.
- On the keyboard, press [Ctrl]+F.
- On the Optivity Switch Manager toolbar, click Find.

The Find Device dialog box opens (Figure 9).

Figure 9 Find Device dialog box



2 Type the name or the IP address of the device.

3 Click Find.

To manually arrange the devices discovered in the network topology:

→ Drag selected devices to desired locations on the topology map.

Getting help

Help in Optivity Switch Manager is arranged by subject. A Web browser, such as Netscape Navigator or Microsoft Internet Explorer, opens to display Help files. You can use the contents frame or the Help index to locate information.

To access Help:

→ Do one of the following:

- From the Optivity Switch Manager menu bar, choose Help > Contents.
- On the keyboard, press [F1].
- On the Optivity Switch Manager toolbar, click Help.

The Help files open in a Web browser.

Chapter 3

Configuring Optivity Switch Manager

This chapter describes configuration tools for Optivity Switch Manager, and includes the following topics:

- [Discovering your network](#) (next)
- [Accessing devices within different SNMP communities](#) (page 53)

Discovering your network

Optivity Switch Manager builds its logical map of the network by querying the topology table of the seed device, using the Bay Autotopology Protocol (BTP). A seed device is a device from which you start learning about the topology of the network. After getting the information about the neighbors of the seed device, Optivity Switch Manager queries the neighbor devices for their topology tables. Optivity Switch Manager then selects the appropriate icon to represent each device, computes the links between devices, and represents the device information in a network topology map.

Discovery continues until the maximum number of hops is reached. By default, Optivity Switch Manager does not query neighbors more than five hops away from the seed device. You can set the number of hops, up to a maximum of 20 hops. Also, you can stop the discovery process at any time by clicking Discovery from the Optivity Switch Manager toolbar. While the discovery process is occurring, this button changes to show a red X.

Discovering devices on a network

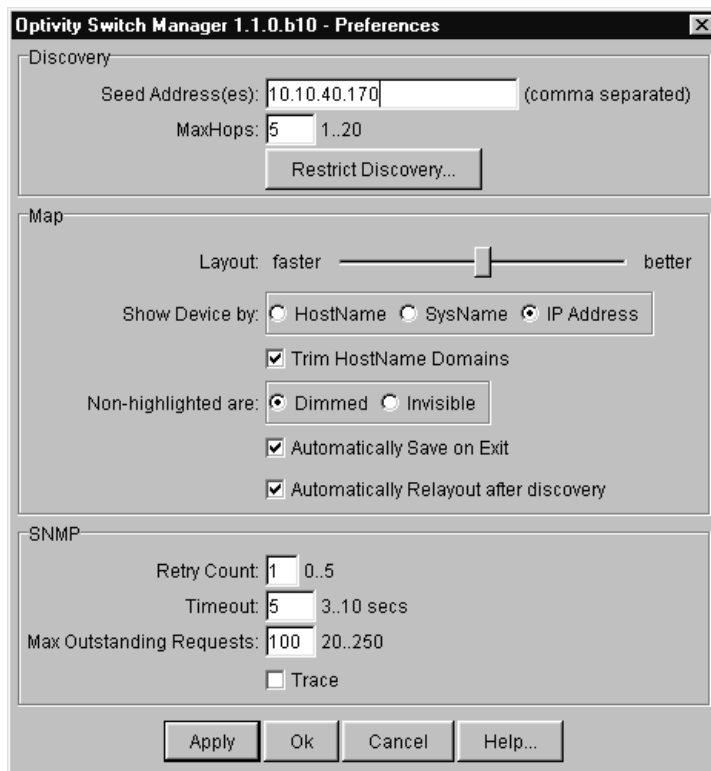
The topology discovery process begins when you supply Optivity Switch Manager with one or more network device seed addresses and the application queries the addresses. The Preferences dialog box specifies the seed address and defines the scope of the discovery process.

To discover a network:

- 1 From the Optivity Switch Manager menu bar, choose Edit > Preferences.

The Preferences dialog box opens (Figure 11).

Figure 11 Preferences dialog box



- 2 In the Seed Address(es) textbox, type the IP address of one or more devices in the network.

Separate multiple IP addresses with commas.

- 3 In the MaxHops textbox, type the maximum number of hops.
- 4 Use the Layout slider to indicate whether greater speed or better accuracy is more important.
- 5 Select other options in the dialog box to control the appearance of the topology map.
See [Table 8](#) for a description of the options available.
- 6 Click Apply.
- 7 Click OK.
- 8 From the Optivity Switch Manager menu bar, choose Actions > Discover Map.

The topology map is displayed.

[Table 8](#) describes the items in the Preferences dialog box.

Table 8 Preferences dialog box items

Section	Item	Description
Discovery	Seed Address(es)	The IP address(es) of one or more devices that Optivity Switch Manager queries using SNMP to start the discovery process. For a list of supported devices, see <i>Installing Optivity Switch Manager, Release 1.1.0.0</i> . Note: If the devices you want to monitor and configure are not connected to the same network, you can specify multiple seed addresses, separated by commas. The separate networks do not appear to be connected in the network topology map.
	Max Hops	The number of hops, between 1 and 20, that a data packet travels from one router or intermediate point to another in the network. (Default is 5 hops.)
	Restrict Discovery	Opens the Restrict Discovery dialog box to restrict device discovery to only the devices in the subnets entered. Refer to “Restricting discovery” on page 51 for more information.

Table 8 Preferences dialog box items (continued)

Section	Item	Description
Map	Layout	Drag the slider to the right (better) or to the left (faster) to indicate how you want Optivity Switch Manager to lay out devices in the network topology map. Refer to “Layout slider” on page 52 for more information.
	Show Device by	Determines how a device is identified in the network topology map. The selections are: <ul style="list-style-type: none"> • HostName • SysName • IP Address (Default)
	Trim HostName Domains	Truncates Internet host name domains. Example: nortelnetworks.com becomes nortelnetworks
	Non-highlighted area	Allows you to select an option for viewing inactive devices. The options are: <ul style="list-style-type: none"> • Dimmed—Non-highlighted items are shaded. (Default) • Invisible—Removes non-highlighted items from the topology map.
	Automatically Save on Exit	If checked, the current network topology map is automatically saved to the default.topo file.
	Automatically Relayout after discovery	If checked, the network topology map is adjusted for better viewing as it is loaded in Optivity Switch Manager.

Table 8 Preferences dialog box items (continued)

Section	Item	Description
SNMP	Retry Count	The number of times, between 0 and 5, Optivity Switch Manager tries to connect to a device using SNMP. (The default is 1.)
	Timeout	The amount of time, between 3 and 10 seconds, Optivity Switch Manager waits before trying to connect to a device again. (The default is 5.)
	Max Outstanding Requests	The number of SNMP requests, between 20 and 250, that Optivity Switch Manager maintains as open or outstanding. (The default is 100.)
	Trace	If checked, additional SNMP information is written to the Optivity Switch Manager error log, and can provide assistance in troubleshooting. Note: Selecting Trace could slightly slow down performance as extra information is gathered.

Restricting discovery

You can restrict the discovery process to devices on specified subnets. Use the Restrict Discovery dialog box to enter IP subnets that are available for discovery by Optivity Switch Manager. Only devices on a listed subnet are displayed in the Optivity Switch Manager contents pane.

To restrict discovery to certain subnets:

- 1 From the Optivity Switch Manager menu bar, choose Edit > Preferences.
- 2 Click Restrict Discovery.

The Restrict Discovery dialog box opens ([Figure 12](#)).

Figure 12 Restrict Discovery dialog box

- 3** Click Insert.
A new row containing 0.0.0.0 appears under the To Subnet heading.
- 4** Click the row containing 0.0.0.0 and type the subnet address.
- 5** Click Close.

Layout slider

Use the layout slider to improve the readability of the topology map. It adjusts the layout of the devices in the network topology using the Spring algorithm, which balances the distances between devices and minimizes the number of crossing lines.

To use the layout slider:

- 1** Choose Edit > Preferences.
The Preferences dialog box opens ([Figure 11 on page 48](#)).
- 2** In the Map area, slide the ruler between faster and better to adjust the layout display.
Optivity Switch Manager retains the locations of nodes until you rediscover the network.
- 3** Click Apply.

- 4 To rediscover the network topology map with new layout, do one of the following:
 - From the Optivity Switch Manager menu bar, choose Actions > Discover Map.
 - On the Optivity Switch Manager toolbar, click Discover Network.

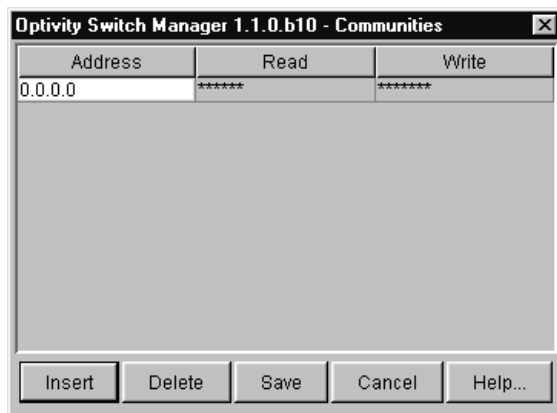
Accessing devices within different SNMP communities

SNMP community passwords can provide a level of protection by limiting access to devices. In Optivity Switch Manager, you can access subnets with different communities by adding the correct SNMP passwords in the Communities dialog box. SNMP devices, which include those devices supported by Optivity Switch Manager, typically have two passwords or communities for read and write operations on that device. The two passwords are “public” (open access) and “private” (restrictive access).

By default, Optivity Switch Manager reads an ASCII file (`snmpcomm.properties`) that contains one entry. That entry allows Optivity Switch Manager to access all devices in the discovered network using “public” as the community password for read operations and “private” as the password for write operations. If devices contain a different SNMP community password, you cannot access them unless you know their passwords and enter those password into the Optivity Switch Manager `snmpcomm.properties` file.

To assign a different SNMP community password to a group or single device:

- 1 From the Optivity Switch Manager menu bar, choose Edit > Communities.
The Communities dialog box opens ([Figure 13](#)).

Figure 13 Communities dialog box**2** Click Insert.

An empty row is added to the table.

3 Click on the empty row and enter the IP address and communities.**4** Click Save.

The changes are saved to the snmpcomm.properties file.

[Table 9](#) describes the Communities fields in the dialog box.

Table 9 Communities dialog box fields

Fields	Descriptions
Address	The subnet address of a group of devices or the IP address of a single device. (Default is 0.0.0.0 to include all devices.) Note: Optivity Switch Manager uses zero (0) as a wildcard to associate SNMP communities with groups of devices. You can place a zero anywhere in the IP address. For example, the address 10.10.0.0 refers to all addresses in the 10.10. subnet.
Read	The level of permission to view or read configuration information on a group of devices or single device. The community string default is public (open access)
Write	The level of permission to change configuration information on a group of devices or single device. The default community string is private (restrictive access)

Chapter 4

Using VLAN Manager

VLAN Manager manages Spanning Tree Groups (STGs) and VLANs across devices in a network. Optivity Switch Manager is the starting point for VLAN Manager, and Optivity Switch Manager must be open to use VLAN Manager.

This chapter describes using VLAN Manager to manage VLANs on Passport and BayStack switches. The chapter includes the following information:

- [What is VLAN Manager?](#), next
- [Starting VLAN Manager](#) (page 57)
- [VLAN Manager window](#) (page 57)
- [Using VLAN Manager](#) (page 63)
- [Managing spanning tree groups \(STGs\)](#) (page 79)
- [Managing a VLAN](#) (page 82)
- [Highlighting STGs and VLANs in the Optivity Switch Manager contents pane](#) (page 93)

What is VLAN Manager?

VLAN Manager enables you to manage VLAN and STG configurations across a single device or multiple devices. It supports the rcVlan and rcStg MIBs.

VLAN

A VLAN is a collection of ports on one or more switches that defines a broadcast domain. You can assign ports to a VLAN or you can create a policy VLAN, which determines the port's membership in the VLAN based on the traffic entering that port. For example, in an IP subnet-based VLAN, the port belongs to the VLAN only if the traffic passing through the port is on the specified IP subnet.

You control path redundancy for VLANs by implementing the Spanning Tree Protocol (STP).

Spanning Tree Protocol

As defined in the IEEE 802.1D standard, the Spanning Tree Protocol detects and eliminates logical loops in a bridged or switched network. When multiple paths exist, the spanning tree algorithm configures the network so that a bridge or switch uses only the most efficient path. If that path fails, the protocol automatically reconfigures the network to make another path active, thus sustaining network operations.

The collection of ports in one spanning tree is called a spanning tree group (STG) and a network may include multiple instances of STGs. All the devices supported by Optivity Switch Manager support at least one STG. The Passport 1000 Series switch and the Passport 8600 modules support multiple spanning trees, thus multiple spanning tree groups.

[Table 10](#) lists the maximum number of STGs and VLANs supported by the different switches.

Table 10 Maximum STGs and VLANs supported by switches

Switch	Maximum number of STGs	Maximum number of VLANs
Passport 1000 Series switch	25	124
Passport 8100 modules	1	2000
Passport 8600 modules	25	1979
BayStack 350/410/450 switches	1	64
Business Policy Switch 2000	1	64

For more information about VLANs and Spanning Tree Protocol, refer to *Networking Concepts for the Passport 1000 Series Routing Switch Release 2.0* and *Networking Concepts for the Passport 8000 Series Routing Switch*.

VLAN Manager features

VLAN Manager allows you to:

- Configure and monitor VLANs and STGs across one or multiple devices.
- View and edit port membership information: ports not belonging to an STG, or ports belonging to multiple STGs, individual routing ports and brouter ports.
- View Spanning Tree configuration information In the Optivity Switch Manager contents pane, such as which ports are blocking or forwarding. You can also see which device is the root of the Spanning Tree configuration.

The following sections describe the VLAN Manager window and the management functions available.

Starting VLAN Manager

To start VLAN Manager:

➔ Do one of the following:

- From the Optivity Switch Manager menu bar, choose Tools > VLAN Manager.
- On the keyboard, press [F2].
- On the Optivity Switch Manager toolbar, click VLAN Manager.

The VLAN Manager window opens ([Figure 14](#)).

VLAN Manager window

The VLAN Manager window ([Figure 14](#)) contains the parts described in [Table 11](#).

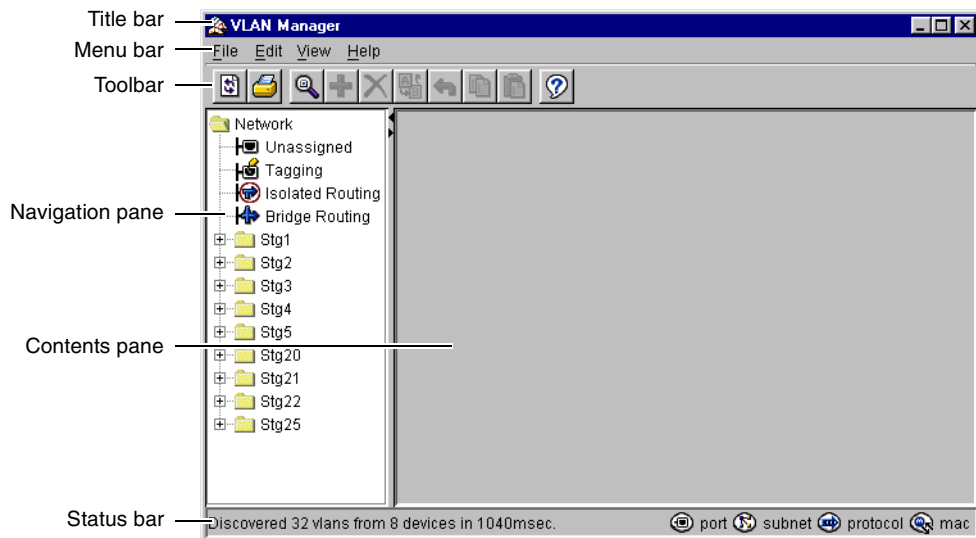
Figure 14 VLAN Manager window

Table 11 describes the parts of the VLAN Manager window.

Table 11 VLAN Manager window parts

Part	Description
Title bar	Displays the submanager name.
Menu bar	Provides access to all VLAN Manager commands.
Toolbar	Provides quick access to commonly-used VLAN Manager commands.
Navigation pane	Provides a navigation tree showing VLAN Manager network folder resources.
Contents pane	Displays information selected in the navigation pane.
Status bar	Displays status information, including the type of device highlighted and command status.

Menu bar

The menu bar provides menus and commands for operating VLAN Manager.

Table 12 lists the VLAN Manager menus and commands.

Table 12 VLAN Manager menus and commands

Menu	Command	Shortcut Key	Description
File	Reload	[Ctrl]+R	Reloads the VLAN Manager information.
	Save Diagnostic Info	[Ctrl]+S	Saves diagnostic information about the STGs and VLAN discovered.
	Print	[Ctrl]+P	Opens the Print dialog box, where you enter print parameters.
	Close		Closes the VLAN Manager window.
Edit	Undo Changes	[Ctrl]+Z	Reverses any changes you made to an item or field.
	Copy	[Ctrl]+C	Copies the contents of a selected cell.
	Paste	[Ctrl]+V	Pastes the cell contents to a new location.
	Insert	[Insert]	Opens the Insert dialog box, where you insert an STG or VLAN on selected devices.
	Delete	[Del]	Removes a selection and displays a message to confirm deletion of the selected VLAN.
	Apply Changes	[Ctrl]+A	When you have made changes to your VLAN configuration, this command applies these changes to the devices in the network.
	Edit MAC Address		Allows you to insert the text file containing the MAC addresses for MAC-based VLANs.
	Find	[Ctrl]+F	Opens the Find dialog box, where you set parameters to find matching entries in your network.
View	Highlight Topology		Highlights the VLAN topology map in the Optivity Switch Manager contents pane.
	Audit		Queries the network configuration to report any discrepancies.

Table 12 VLAN Manager menus and commands (continued)

Menu	Command	Shortcut Key	Description
Help	Using		Opens a Web browser and loads the Help files.
	Online Support		Opens a Web browser that loads the Nortel Networks Customer Support Web page.
	About VLAN Manager		Displays information about VLAN Manager.

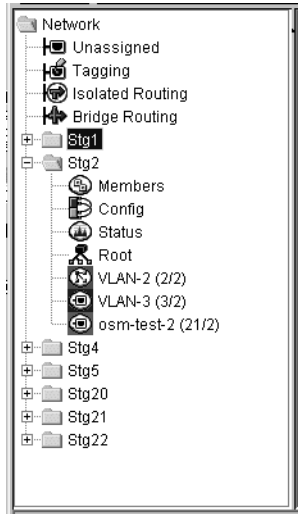
Toolbar

For information about the toolbar buttons available in VLAN Manager, refer to [Table 5 on page 36](#).

Navigation pane

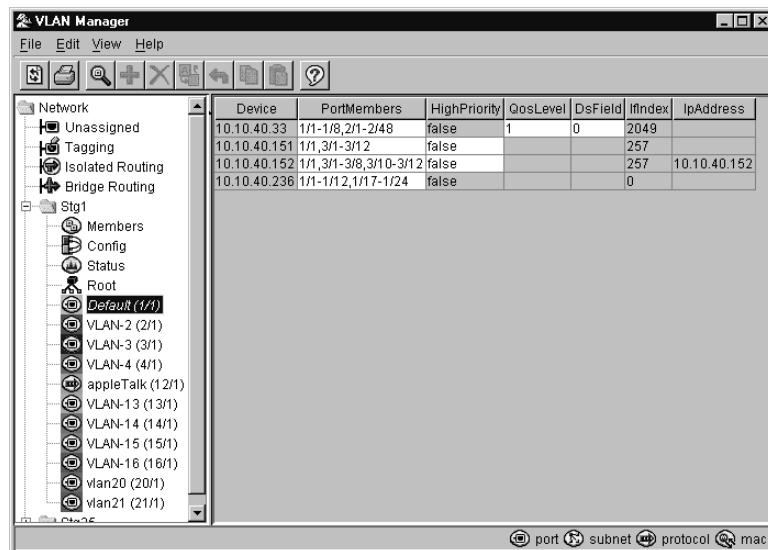
The VLAN Manager navigation pane ([Figure 15](#)) is located on the left side of the window. It contains a network folder for each STG found in the network. When you select an STG folder, the tree expands to display the STG configuration information and then lists the VLANs associated with that STG.

In the navigation pane, select the folder for which you want to view STG or VLAN information, or choose Edit > Print to print the navigation tree.

Figure 15 VLAN Manager navigation pane

Contents pane

When you select a network resource in the navigation pane, a table opens in the contents pane (Figure 16).

Figure 16 Default (1) folder view in the contents pane

To view the VLAN information in the contents pane:

- ➔ In the navigation pane, select an STG or VLAN icon.

The example in [Figure 16](#) shows the VLAN membership information for the Default VLAN. The Default (1) folder opens in the contents pane when you select Default (1) from the navigation tree.

Status bar

The VLAN Manager status bar ([Figure 14 on page 58](#)) is located at the bottom of the VLAN Manager window and contains two fields. [Table 13](#) describes the VLAN Manager status bar fields.

Table 13 VLAN Manager status bar fields

Field	Description
Message	Located on the left, the message field displays information about VLAN manager operations.
Icon	Located on the right, the icon field provides a legend for different types of VLANs found in the network: <ul style="list-style-type: none">• port—a VLAN in which the ports are explicitly assigned to the VLAN.• subnet—a VLAN in which ports are dynamically added to the VLAN based on source IP subnet.• protocol—a VLAN in which ports are dynamically added to the VLAN based on a network protocol.• mac—a VLAN in which ports are dynamically added to the VLAN based on the source MAC address.

Finding network resources

You can locate an entry in a field that contains a particular item of information, such as text, seed address, or VLAN ID number.

To find a network resource:

- 1 Click any device in the navigation tree or contents pane, and do one of the following:
 - From the VLAN Manager menu bar, choose Edit > Find.

- On the VLAN Manager toolbar, click Find.

The Find dialog box opens (Figure 17).

Figure 17 Find dialog box



- 2 In the Find text box, type the text or number for your search.
- 3 In the In section, click the Tree option to search the navigation tree, or click the Table option to search the contents pane.
- 4 Click Next.
VLAN Manager starts its search and highlights the first match that it finds or displays a message that it found no matches.
- 5 If a first match was found, click Next to find each subsequent match, or click Previous to go back to your last match.

Using VLAN Manager

Using VLAN Manager, you can monitor, configure, and troubleshoot STGs and VLANs found in the network.

This section includes the information about the following topics:

- [Port membership](#) (ports not belonging to STGs or ports belonging to multiple STGs)
- [Viewing spanning tree groups \(STGs\)](#)
- [VLAN ports](#)





Port membership

In the navigation pane, the top four icons represent the following types of port memberships:

- Unassigned
- Tagging
- Isolated Routing Port (IRP)
- Bridge Routing (router ports)

Table 14 describes the port membership types.

Table 14 Port membership types and STGs

Icon	Port type	Description
	Unassigned	Port that do not belong to any STG. If no devices in the network contain unassigned ports, a table does not open in the contents pane.
	Tagging	Port that has tagging enabled and can belong to multiple STGs. If a tagged frame is received on a tagged port, with a VLAN ID specified in the tag, the switch directs it to that VLAN, if it is present.
	Isolated Routing Port (IRP)	Port that can only route IP packets and does not belong to any STG or VLAN. Note: IRPs are applicable only to the Passport 1000 Series switch.
	Bridge Routing (router ports)	Port that can route IP packets as well as bridge all nonroutable traffic. The routing interface is not subjected to the Spanning Tree Protocol. Note: Bridge routing ports, or brouter ports, are available only on the Passport 1000 Series switch and the Passport 8600 switch.

Viewing the unassigned ports

To view the table associated with the unassigned ports:

- ➔ In the navigation pane, select Unassigned.

The Unassigned Ports table opens in the contents pane (Figure 18). Because there are no unassigned ports in the discovered network, the table is empty.

Figure 18 Unassigned Ports table

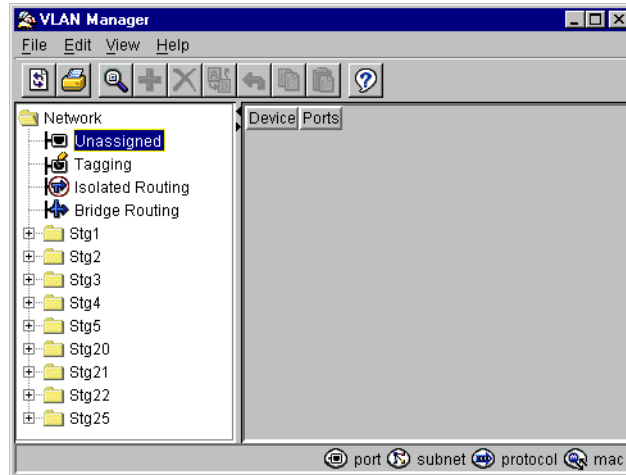


Table 15 describes the Unassigned Ports table fields.

Table 15 Unassigned Ports table fields

Field	Description
Device	IP address, system name, or host name of the device.
Ports	Ports not currently assigned to an STG.

Viewing tagged Ports

To view the devices and ports associated with tagged ports:

- ➔ In the navigation pane, select Tagging.

The Tagging Ports table opens in the contents pane (Figure 19).

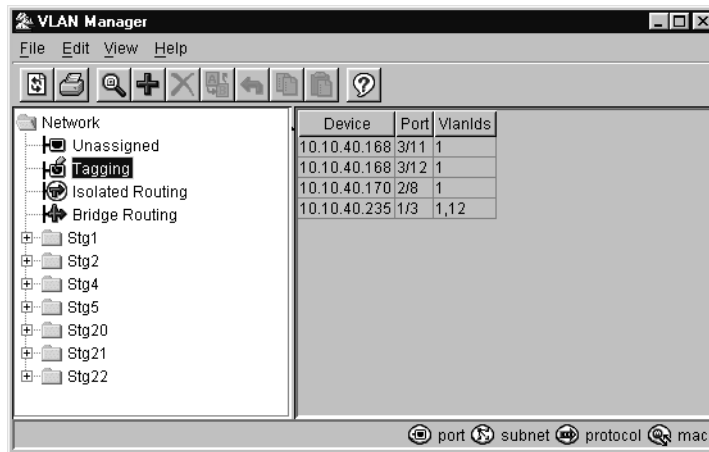
Figure 19 Tagging Ports table

Table 16 describes the fields in the Tagging Ports table.

Table 16 Tagging Ports table fields

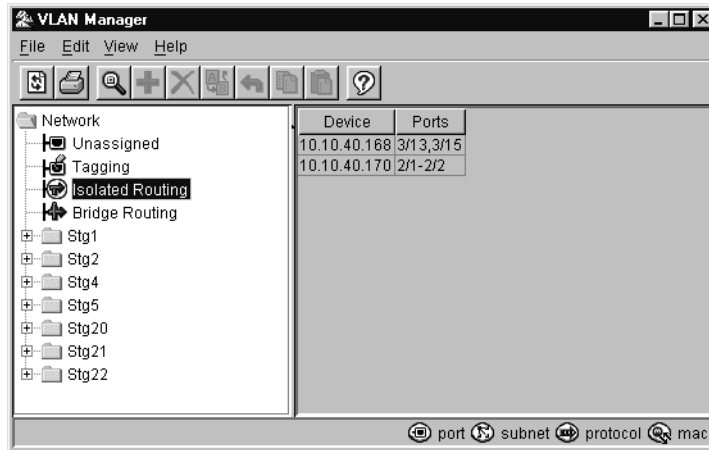
Field	Description
Device	IP address, system name, or host name of the device.
Port	Ports on which tagging is enabled.
VlanIds	VLAN ID(s) of which the port is a member.

Viewing isolated router ports (IRPs)

To view IRPs on Passport 1000 Series switches:

- ➔ In the navigation pane, select Isolated Routing.

The Isolated Routing Ports table opens in the contents pane (Figure 20).

Figure 20 Isolated Routing Ports table

[Table 17](#) describes the fields in the Isolated Routing Ports table.

Table 17 Isolated Routing Ports table fields

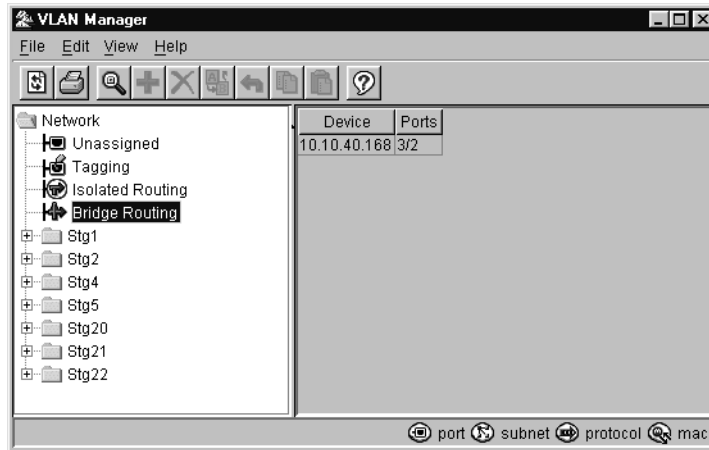
Field	Descriptions
Device	IP address, system name, or host name of the device.
Ports	Ports that route only IP packets.

Viewing bridge routing Ports

To view bridge routing (router) ports on Passport 1000 Series switches and Passport 8000 Series switches:

- ➔ In the navigation pane, select Bridge Routing.

The Bridge Routing Ports table opens in the contents pane ([Figure 21](#)).

Figure 21 Bridge Routing Ports table

[Table 18](#) describes the fields in the Bridge Routing Ports table.

Table 18 Bridge Routing Ports table fields

Field	Descriptions
Device	IP address, system name, or host name of the device.
Ports	Port numbers of the port on which frames are received.

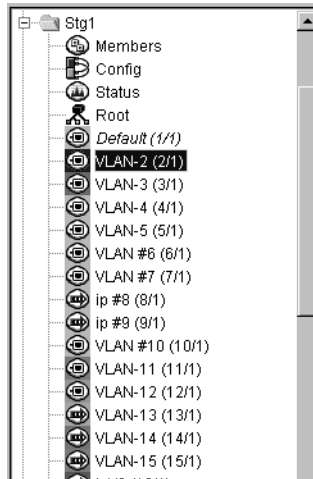
Viewing spanning tree groups (STGs)

All devices supported by Optivity Switch Manager support the IEEE 802.1D Spanning Tree Protocol and at least one instance of a Spanning Tree Group. Refer to [Table 10 on page 56](#) for the maximum STGs supported by each switch.

To view an STG:

- ➔ Click the folder for the STG you want to view.

The folder expands to show four icons representing types of information available about the STG and a list of VLANS in the STG ([Figure 22](#)).

Figure 22 STG folder in the VLAN Manager navigation pane

[Table 19](#) describes the STG icons displayed in the VLAN Manager navigation pane.

Table 19 STG information icons

Icon	Name	Representation
	Members	Devices and ports that are part of the STG.
	Config	STG configuration information.
	Status	STG status information, including STG topology change information.
	Root	Devices that are the STG root.

Members

To view the ports that are members of the STG:

➔ In the navigation pane, select Members.

The Members table opens in the contents pane ([Figure 23](#)).

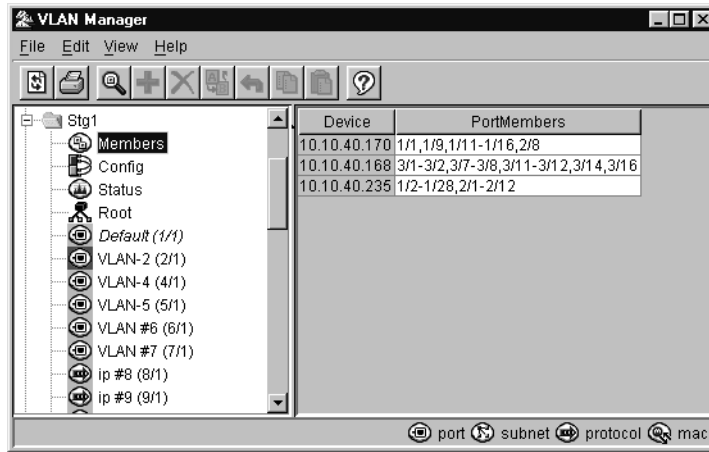
Figure 23 Spanning tree group members table

Table 20 describes the fields in the Members table.

Table 20 Members table fields

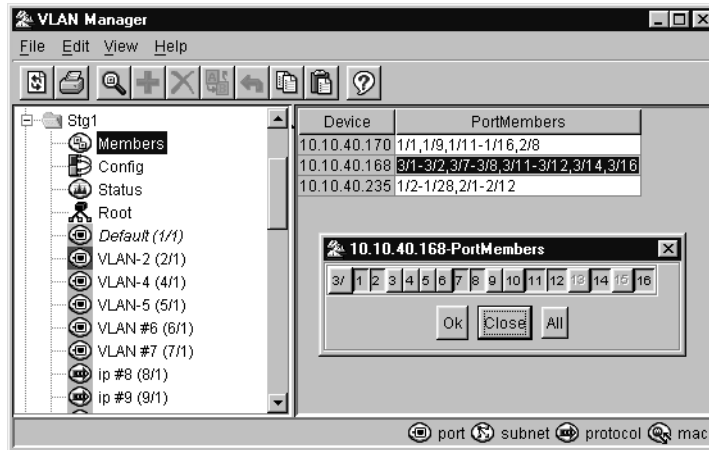
Field	Description
Device	IP address, system name, or host name of the device.
PortMembers	Ports on the device that are members of the STG.

Adding port members

To add ports to an STG:

- 1 In the Members table, select a device in the list.
- 2 Double-click in the PortMembers cell for the device to which you want to add port membership.

The PortMembers dialog box opens (Figure 24).

Figure 24 PortMembers dialog box

- 3 Select the port number(s) or click All for all the ports.
- 4 Click Ok.

Viewing and configuring STG parameters

You can view and configure STG parameters.

To view the configuration information:

- ➔ In the navigation pane, select Config.

The Configuration table opens (Figure 25) in the contents pane.

Figure 25 Configuration table

Device	Priority	BridgeMaxAge	BridgeHelloTime	BridgeForwardDelay	EnableStp	StpTrapEnable	TaggedBpduAddress	TaggedBpduVlanId
10.10.40.170	32768	2000	200	1500	true	true	00:00:00:00:00:00	0
10.10.40.168	32768	2000	200	1500	true	true	00:00:00:00:00:00	0
10.10.40.235	32768	2000	200	1500	false	false	00:00:00:00:00:00	0

Table 21 describes the fields in the Configuration table.

Table 21 Configuration table fields

Field	Description
Device	IP address, system name, or host name of the device.
Priority	The Spanning Tree Protocol (STP) bridge priority, in decimal. The range is 0 (highest priority) to 65535 (lowest priority). The default is 32768.
BridgeMaxAge	The value in hundredths of a second that all bridges use for MaxAge when this bridge is acting as the root. Note: The 802.1D-1990 standard specifies that the range for this parameter is related to the value of dot1dStp\Time. The default is 2000 (20 seconds).
BridgeHelloTime	The value in hundredths of a second that all bridges use for Hello Time when this bridge is acting as the root. The granularity of this timer is specified by the IEEE 802.1D-1990 standard to be in increments of 1/100 of a second. The default is 200 seconds.
BridgeForwardDelay	The value in hundredths of a second that all bridges use for Forward Delay when this bridge is acting as the root. The default is 1500 (15 seconds).
EnableStp	Enables or disables the spanning tree algorithm for the spanning tree group.
StpTrapEnable	Enables or disables SNMP traps to be sent to trace receiver every time an STP topology change occurs.

Table 21 Configuration table fields (continued)

Field	Description
TaggedBpduAddress	A MAC address; specifically for tagged BPDUs.
TaggedBpduVlanId	The VLAN tag associated with the spanning tree group. This ID is used to tag BPDUs through a non-IEEE tagging bridge to another Passport switch.

Status group

Use the read-only Status table to view the status of the Spanning Tree Protocol for each STG that is associated with the network.

To view the Status table:

➔ In the navigation pane, select Status.

The Status table ([Figure 26](#)) opens in the contents pane.

Figure 26 Status table

Device	NumPorts	ProtocolSpecification	TimeSinceTopologyChange	TopChanges	MaxAge	HelloTime	HoldTime	ForwardDelay
10.10.40.168	8	ieee8021d	0h:28m:27s	95	2000	200	100	1500
10.10.40.235	40	ieee8021d	20h:34m:11s	12	2000	200	100	1500
10.10.40.170	9	ieee8021d	0h:28m:27s	566	2000	200	100	1500

[Table 22](#) describes the fields in the Status table.

Table 22 Status table fields

Field	Description
Device	IP address of the bridge.
NumPorts	Number of ports controlled by this bridging entity.
ProtocolSpecification	An indication of which version of the Spanning Tree Protocol (STP) is operating. The IEEE 802.1d implementations display ieee8021d.
TimeSinceTopologyChange	Time in hundredths of a second since the last time a topology change was detected by the bridge entity or STG.
TopChanges	The number of topology changes detected by this bridge since the management entity was last reset or initialized.
MaxAge	Maximum age of STP information learned from the network on any port before it is discarded, in units of hundredths of a second. This is the actual value that the bridge is currently using. The default value is 2000 (20 seconds).
HelloTime	Amount of time in hundredths of a second between transmission of configuration bridge protocol data units (BPDUs) by this device on any port when it is the root of the spanning tree. The default value is 200 (2 seconds).
HoldTime	Time interval in hundredths of a second during which no more than two configuration BPDUs are transmitted by this device. The default value is 100 (1 second).
ForwardDelay	Time interval in hundredths of a second that controls how fast a port changes its spanning state when moving toward the Forwarding state. This value determines how long the port stays in each of the Listening and Learning states, which precede the Forwarding state. This value is also used when a topology change is detected and is under way, to age all dynamic entries in the Forwarding Database. The default value is 1500 (15 seconds).

Root

The read-only Root table displays information about the device acting as root within a selected STG.

To view the root table:

- ➔ In the navigation pane, select Root.

The Root table opens in the contents pane (Figure 27).

Figure 27 Root table

Device	BridgeAddress	DesignatedRoot	RootCost	RootPort
10.10.40.170	00:e0:16:57:7e:01	80:00:00:00:00:a1:a2:a5	200	1/1
10.10.40.168	00:e0:16:83:26:01	80:00:00:00:00:a1:a2:a5	200	3/1
10.10.40.29	00:80:2d:8c:1fde	80:00:00:00:00:a1:a2:a5	210	4/1
10.10.40.235	00:60:fd:9e:2b:6a	80:00:00:00:00:a1:a2:a5	200	1/12

Table 23 describes the fields on the Root table.

Table 23 Root table fields

Field	Description
Device	IP address of a device in the STG.
BridgeAddress	MAC address used by this bridge when it must be identified in a unique fashion.
DesignatedRoot	Bridge identifier of the root of the spanning tree as determined by the Spanning Tree Protocol as executed by this device. This value is used as the Root Identifier parameter in all configuration BPDUs originated by this device.
RootCost	Cost of the path to the root as seen from this bridge.
RootPort	Port number of the port that offers the lowest cost path from this bridge to the root bridge.

Default VLAN

Passport 8000 Series switches, Passport 1000 Series switches, BayStack 350/410/450 switches, and the Business Policy Switch 2000 are factory configured with all ports in a port-based VLAN called the default VLAN. The VLAN ID of the default VLAN is always 1, and it is always a port-based VLAN. You cannot delete the default VLAN, although you can remove ports from it.

To view the Default Ports table:

➔ From the navigation tree, select Default(1).

The Default VLAN table opens in the contents pane (Figure 28).

Figure 28 Default VLAN table

Device	PortMembers	HighPriority	QosLevel	DsField	IIndex	IpAddress
10.10.40.33	1/1-1/8, 2/1-2/48	false	1	0	2049	
10.10.40.151	1/1, 3/1-3/12	false			257	
10.10.40.152	1/1, 3/1-3/8, 3/10-3/12	false			257	10.10.40.152
10.10.40.236	1/1-1/12, 1/17-1/24	false			0	

Table 24 describes the fields in the Default VLAN table.

Table 24 Default VLAN table fields

Field	Description
Device	IP address, system name, or host name of the device.
PortMembers	Ports that are assigned to the VLAN.
HighPriority	In a Passport 1000 Series switch, you can select HighPriority mode for all traffic in the VLAN.
QosLevel	In a Passport 8000 Series switch, you can set the Quality of Service level for traffic in the VLAN to a level between 1 and 8.
DsField	In a Passport 8000 Series switch, you can set the Differentiated Services field for traffic in the VLAN to a level between 1 and 54.

Table 24 Default VLAN table fields (continued)

Field	Description
IfIndex	<p>Logical interface index assigned to the VLAN. This value can be in one of the following ranges:</p> <ul style="list-style-type: none"> Passport 1000 Series switch: 257 to 512 Passport 8000 Series switch: 2049 to 4096 <p>Note: This field does not apply to BayStack or Business Policy Switch 2000 switches.</p>
IpAddress	IP address, if any, assigned to the VLAN for routing.

VLAN ports

Ports in a VLAN are always members of a spanning tree group (STG). A VLAN can include all the ports in a given STG, and there can be multiple VLANs in an STG, but a VLAN will never have more ports than exist in the STG.

In an STG, VLAN information is displayed in the contents pane when that VLAN is selected.

The icon that precedes the VLAN name identifies the type of VLAN:

- Port
- Subnet
- Protocol
- Mac



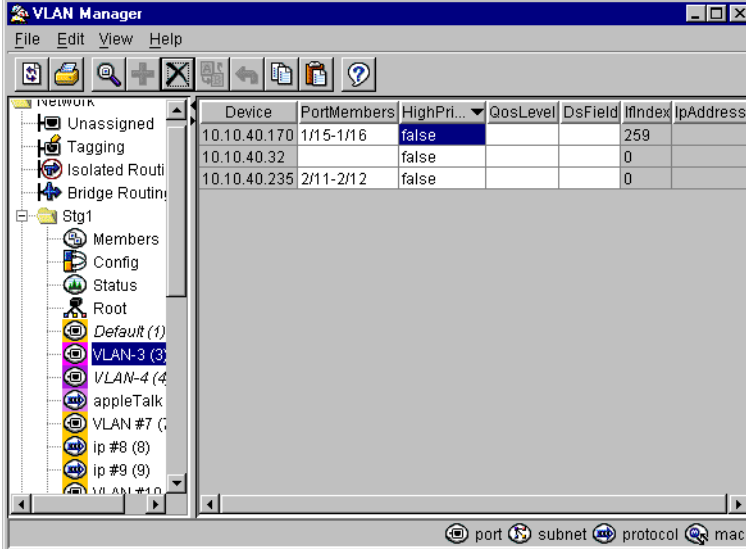
Note: Not all VLAN types are available on all devices that Optivity Switch Manager supports. Of these four types of VLANs, Passport 8100 switches and the Business Policy Switch 2000 support only port-based or protocol-based VLANs. BayStack 350/410/450 switches support only port-based VLANs. Refer to the documentation that was shipped with your switch for more information.

To view VLANs:

- ➔ In the navigation pane, select a VLAN.

The VLAN table opens (Figure 29) in the contents pane.

Figure 29 VLAN table



The screenshot shows the 'VLAN Manager' application window. The left pane displays a tree view of network configurations, with 'VLAN-3 (3)' selected. The main pane displays a table with the following data:

Device	PortMembers	HighPri...	QosLevel	DsField	IfIndex	IpAddress
10.10.40.170	1/15-1/16	false			259	
10.10.40.32		false			0	
10.10.40.235	2/11-2/12	false			0	

Table 24 on page 76 describes the fields in the VLAN table.

Managing spanning tree groups (STGs)

You can edit STG and STG membership information to manage STGs in any of the following ways:

- Creating a spanning tree group
- Editing a spanning tree group
- Deleting a spanning tree group

Creating a spanning tree group

On a Passport 1000 Series switch or a Passport 8600 switch, you can create new STGs. The BayStack switches and the Business Policy Switch 2000 support only one STG per switch.

To create a new spanning tree group:

- 1 From the navigation tree, highlight the first Network folder and do one of the following:
 - From the VLAN Manager menu bar, choose Edit > Insert.
 - On the VLAN Manager toolbar, click Insert.

The New STG dialog box opens ([Figure 30](#)).

Figure 30 New STG dialog box

- 2 Insert values or select options in the option boxes.
- 3 Click Ok.

[Table 25](#) describes the items in the New STG dialog box.

Table 25 New STG dialog box items

Item	Description
Id	A number between 1 and 25 that identifies the new spanning tree group (STG) configured on the network.
TaggedBpduAddress	A MAC address, specifically for tagged BPDUs.
TaggedBpduVlanId	The VLAN tag associated with the STG. This ID is used to tag BPDUs through a non-IEEE tagging bridge to another Passport or BayStack switch.
Priority	STP bridge priority, in decimal. The range is 0 (highest priority) to 65535 (lowest priority). The default is 32768.
BridgeMaxAge	Value in hundredths of a second that all bridges use for MaxAge when this bridge is acting as the root. Note: The 802.1D-1990 standard specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime. The default is 2000 (20 seconds).

Table 25 New STG dialog box items (continued)

Item	Description
BridgeHelloTime	Value in hundredths of a second that all bridges use for Hello Time when this bridge is acting as the root. The granularity of this timer is specified by the IEEE 802.1D-1990 standard to be in increments of 1/100 of a second. The default is 200 seconds.
BridgeForwardDelay	Value in hundredths of a second that all bridges use for Forward Delay when this bridge is acting as the root. The default is 1500 (15 seconds).
Enable Stp	Enables or disables the spanning tree algorithm for the spanning tree group.
Enable Stp Traps	Enables SNMP traps to be sent to trace receiver every time an STP topology change occurs.
On All Devices	When checked, selects all devices listed in the list. Otherwise, select the individual devices to be added to the STG.

Editing a spanning tree group

To edit a spanning tree group:

- 1 Select an STG folder.
- 2 In the STG table in the contents pane, click the item that you want to edit.
The field is highlighted, and you can edit directly in the table.
- 3 Type information in the text boxes, or select from a list.
The changes appear in bold.
- 4 On the VLAN Manager toolbar, click Apply Changes.

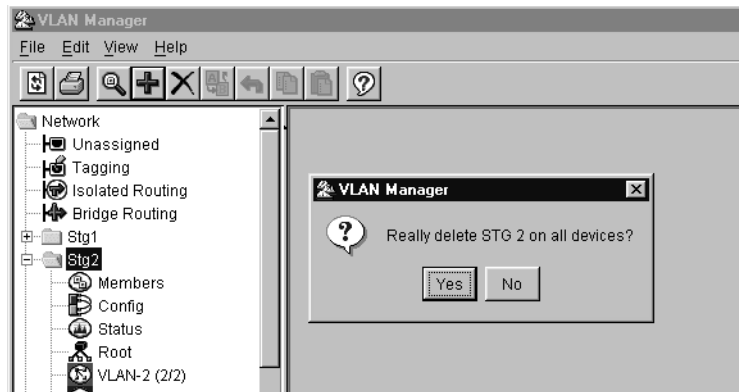
Deleting a spanning tree group

To delete a spanning tree group:

- 1 In the navigation pane, select an STG folder except STG 1, and do one of the following:
 - From the VLAN Manager menu bar, choose Edit > Delete.
 - On the VLAN Manager toolbar, click Delete.

The Delete dialog box (Figure 31) opens, asking you to confirm the deletion of the STG.

Figure 31 Delete dialog box



2 Do one of the following:

- Click Yes to confirm the deletion and return to the table view.
- Click No to cancel the deletion and return to the table view.



Note: Multiple STGs are supported only on Passport 1000 and Passport 8000 Series switches.

Managing a VLAN

This section contains information about common operations you can perform when managing VLANs with VLAN Manager.

Creating a VLAN

When you create VLANs using VLAN Manager, follow these rules:

- VLANs must have unique VLAN IDs and names.
- Trunk (tagged) ports can belong to multiple VLANs and multiple spanning tree groups.
- A VLAN cannot belong to multiple spanning tree groups.

- An access (untagged) port can belong to one and only one port-based VLAN or it can belong to one and only one policy-based VLAN for the given protocol.
- If you enable tagging on a port that is in a VLAN, the spanning tree group configuration for that port is lost.
- A frame's VLAN membership is determined by the following order of precedence:
 - VLAN ID
 - Source MAC-based VLAN
 - IP subnet-based VLAN
 - Protocol-based VLAN
 - Port-based VLAN

Creating a port-based VLAN

To create a port-based VLAN:

- 1** In the navigation pane, select an STG.
- 2** Do one of the following:
 - From the menu bar, choose Edit > Insert.
 - On the toolbar, click Insert.

The New VLAN dialog box opens ([Figure 32](#)).

Figure 32 New VLAN dialog box

3 Type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

4 Type the VLAN name (optional).

If no name is entered, a default is created.

5 For a Passport 8600 switch, select the QoS Level (optional)**6** For a Passport 8600 switch, type the Differentiated Services (DS) Field (optional).**7** For a Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).**8** In the Type option, select byPort.

Other items in the dialog box that apply to a port-based VLAN are activated.

9 Select the device to be configured on the VLAN by doing one of the following:

- Select from the device list.
- Click On All Devices to select all devices in the list.

10 Click Ok.

[Table 26](#) describes the items in the New VLAN dialog box.

Table 26 New VLAN dialog box items

Item	Description
Id	A number between 1 and 4,094 that identifies the new VLAN configured on the network.
Name	Name given to the VLAN.
QosLevel	For a Passport 8000 Series switch, you can set the Quality of Service level for traffic in the VLAN to a level between 1 and 8.
DsField	For a Passport 8000 Series switch, you can set the Differentiated Services field for traffic in the VLAN to a level between 1 and 54.
High Priority	For a Passport 1000 Series switch, you can select HighPriority mode for all traffic in the VLAN.
Type	Type of VLAN: <ul style="list-style-type: none"> • Port-based VLAN • Source IP subnet-based VLAN • Protocol-based VLAN • Source MAC address-based VLAN
On All Devices	Selects all devices in the list.

Creating a source IP subnet-based VLAN

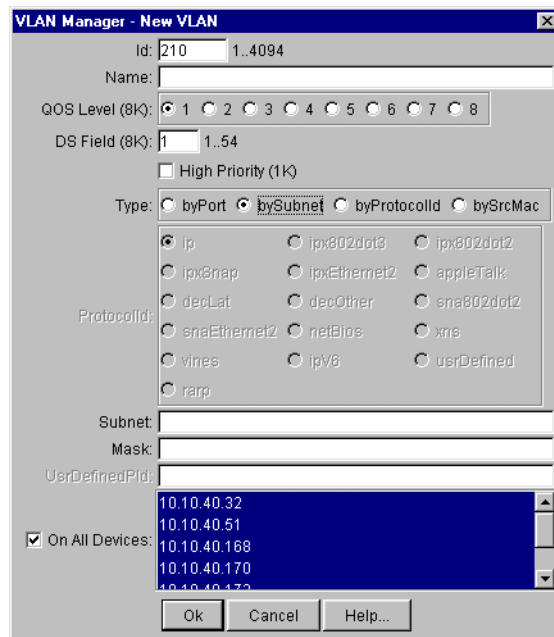
Source IP subnet-based VLANs are supported only on Passport 1000 Series and Passport 8000 Series switches.

To create a source IP subnet-based VLAN:

- 1** In the navigation pane, select an STG.
- 2** Do one of the following:
 - From the menu bar, choose Edit > Insert.
 - On the toolbar, click Insert.

The New VLAN dialog box opens (Figure 33).

Figure 33 New VLAN dialog box with bySubnet selected



3 Type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

4 Type the VLAN name (optional).

If no name is entered, a default is created.

5 For a Passport 8600 switch, you the QoS Level (optional)

6 For a Passport 8600 switch, type the Differentiated Services (DS) Field (optional).

7 For a Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).

8 In the Type option, select bySubnet.

Other items in the dialog box that apply to a subnet-based VLAN are activated.

9 In the Subnet text box, type the source IP subnet address.

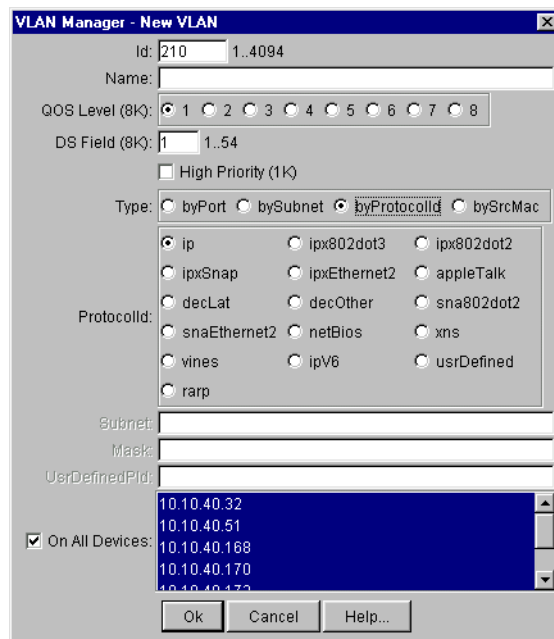
- 10** In the Mask text box, type the IP subnet mask.
- 11** Select the device to be configured on the VLAN by doing one of the following:
 - Select from the device list.
 - Click On All Devices to select all devices in the list.
- 12** Click Ok.
- 13** Do one of the following:
 - From the VLAN Manager menu bar, choose Apply Changes.
 - On the VLAN Manager toolbar, click Apply Changes.

Creating a protocol-based VLAN

To create a protocol-based VLAN:

- 1** In the navigation pane, select an STG.
- 2** Do one of the following:
 - From the menu bar, choose Edit > Insert.
 - On the toolbar, click Insert.

The New VLAN dialog box opens ([Figure 34](#)).

Figure 34 New VLAN dialog box with byProtocolId selected**3** Type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

4 Type the VLAN name (optional).

If no name is entered, a default is created.

5 For a Passport 8600 switch, select the QoS Level (optional)**6** For a Passport 8600 switch, type the Differentiated Services (DS) Field (optional).**7** For a Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).**8** In the Type box, select byProtocolId.

Other items in the dialog box that apply to protocol-based VLANs are activated.

- 9 In the ProtocolId box, select the protocol.
If you select UsrDefined, refer to [“User-defined protocols in a protocol-based VLAN” on page 89](#) for more information.
- 10 Select the device to be configured on the VLAN by doing one of the following:
 - Select from the device list.
 - Click On All Devices to select all devices in the list.
- 11 Click Ok.
- 12 In the Ports table, specify the port membership by clicking on one or all of the following columns and specifying ports:
 - ActiveMember
 - PotentialMembers
 - StaticMembers
 - NotAllowedToJoin
- 13 Do one of the following:
 - From the VLAN Manager menu bar, choose Apply Changes.
 - On the VLAN Manager toolbar, click Apply Changes.

User-defined protocols in a protocol-based VLAN

You can create a protocol-based VLAN with a user-defined protocol for integration into existing networks where nonstandard protocols are used.

In the UserDefinedPid text box, enter the PID of the protocol in the format 0x (protocol type in decimal value).

- For a Passport 8600 switch and Passport 1000 Series switch, the 16-bit PID assigned to a protocol-based VLAN specifies either an Ethertype, a DSAP/SSAP, or a SNAP PID, depending on whether the frame encapsulation is Ethernet 2, 802.2, or LLC-SNAP, respectively.
- For a Passport 8100 switch, the 16-bit PID assigned to a protocol-based VLAN specifies only an Ethertype for Ethernet 2 frame encapsulation.

Refer to the section on user-defined protocols in *Networking Concepts for the Passport 1000 Series Routing Switch Release 2.0* and *Networking Concepts for the Passport 8000 Series Routing Switch* for more information about this topic or to see the actual values and how they are assigned.

The following PIDs are not valid:

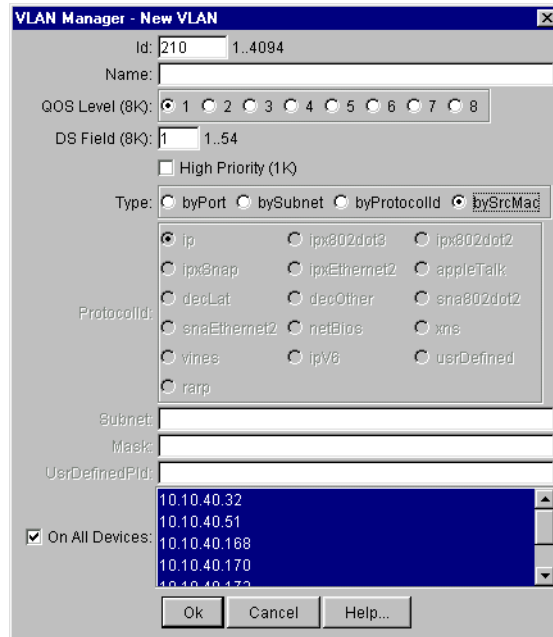
- PID0x0000 through 0x05dc: overlap with the 802.3 frame length
- PIDs of predefined protocols (for example, IP, IPX, AppleTalk)
- PID 0x8100: reserved by 802.1Q to identify tagged frames
- PID0x9000: used by the diagnostic loopback frames
- PID0x8808: used by 802.3x pause frames
- PID0x4242: overlaps with the BPDU DSAP/SSAP

Creating a source MAC address-based VLAN

To create a source MAC address-based VLAN:

- 1** In the navigation pane, select an STG.
- 2** Do one of the following:
 - From the menu bar, choose Edit > Insert.
 - On the VLAN Manager toolbar, click Insert.

The New VLAN dialog box opens ([Figure 35](#)).

Figure 35 New VLAN dialog box with bySrcMac selected

3 Type the VLAN ID.

The value can be from 1 to 4094, as long as it is not already in use. (The default VLAN has a VLAN ID of 1.)

4 Type the VLAN name (optional).

If no name is entered, a default is created.

5 For a Passport 8600 switch, select the QoS Level (optional)

6 For a Passport 8600 switch, type the Differentiated Services (DS) Field (optional).

7 For a Passport 1000 Series switch, specify if the VLAN traffic will be tagged as High Priority (optional).

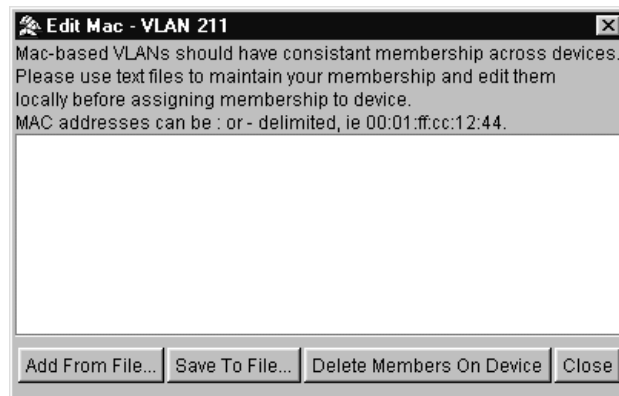
8 In the Type option, select bySrcMac.

Other items in the dialog box that apply to source MAC address-based VLANs are activated.

- 9 Select the device to be configured on the VLAN by doing one of the following:
 - Select from the device list.
 - Click On All Devices to select all devices in the list.
- 10 Click Ok.
- 11 Select the newly created MAC-based VLAN, and choose Edit > Edit Mac Addresses.

The Edit Mac - VLAN dialog box opens (Figure 36).

Figure 36 Edit Mac - VLAN dialog box



- 12 Select Add From File and enter the file name of the text file containing the MAC addresses to added to the new MAC-based VLAN.

You can create this file earlier and remember where you saved the text file. You can use colons (:) or dashes (-) to delineate the MAC address.

- 13 Click Close.
- 14 Click Refresh.

Deleting a VLAN

To delete a VLAN:

- 1 In the navigation pane, select a VLAN and do one of the following:
 - From the VLAN Manager menu bar, choose Edit > Delete.

- On the VLAN Manager toolbar, click Delete.

The Delete dialog box opens ([Figure 31 on page 82](#)).

- 2 Click Yes.

Highlighting STGs and VLANs in the Optivity Switch Manager contents pane

Optivity Switch Manager provides dynamic discovery of active STG devices in a network. From Optivity Switch Manager, you can view the following information:

- Which ports in the network are configured as unassigned, tagging, or isolated routing ports (IRPs) and brouter ports
- Which ports are assigned to a particular spanning tree group (STG)
- Which device is the root of an STG, and which ports are in the forwarding and blocking states.
- Which ports are members of a VLAN or multiple VLANs.

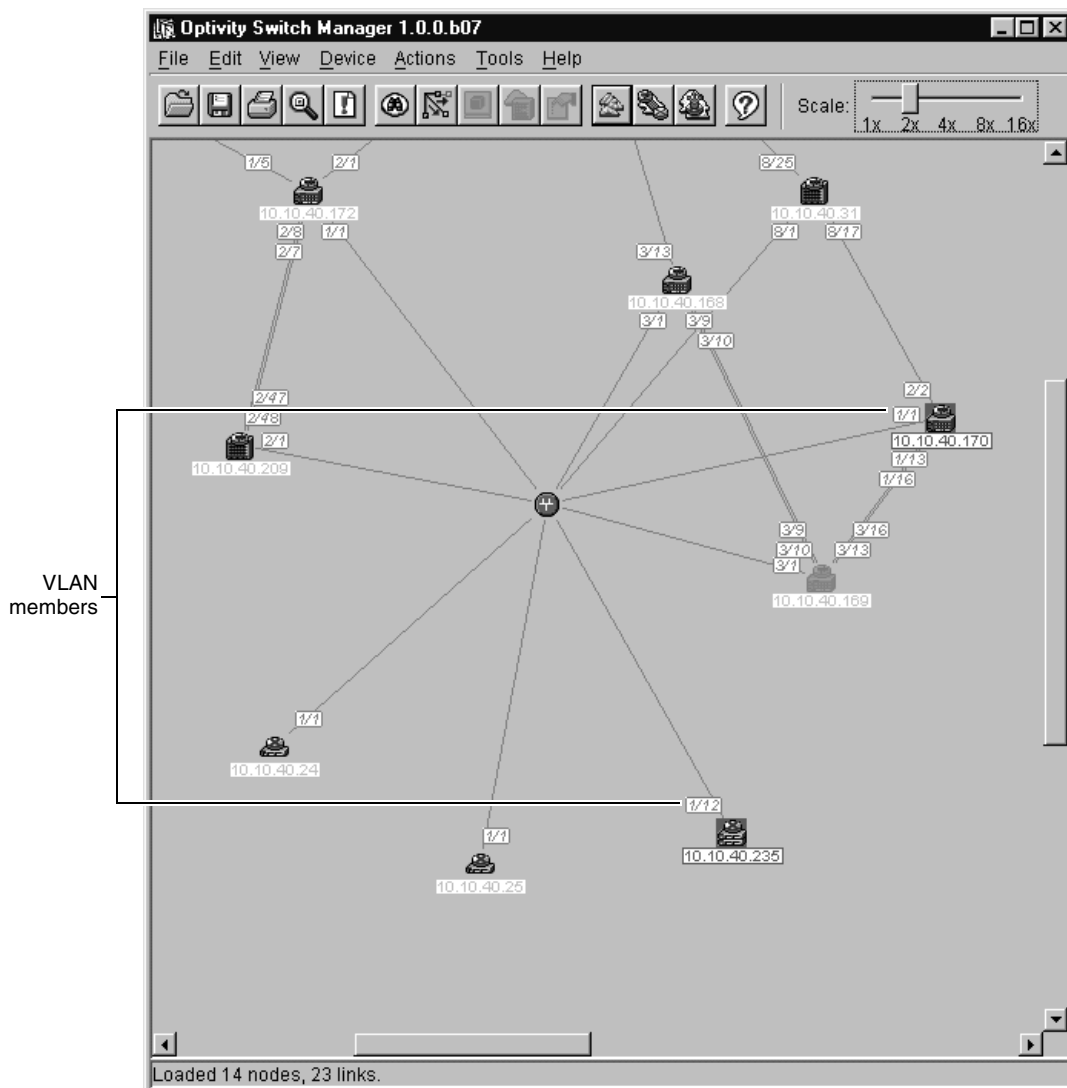
Viewing VLAN members in Optivity Switch Manager

To view the members of a VLAN in Optivity Switch Manager:

- 1 In the navigation pane, choose a VLAN.
The Ports table opens in the VLAN Manager contents pane.
- 2 From the VLAN Manager menu bar, choose View > Highlight Topology.
- 3 Return to the Optivity Switch Manager window.

The highlighted topology view opens in the Optivity Switch Manager contents pane.

[Figure 37](#) shows that 10.10.40.170 and 10.10.40.235 are members of VLAN-209.

Figure 37 VLAN topology in the Optivity Switch Manager contents pane

Viewing STG port members

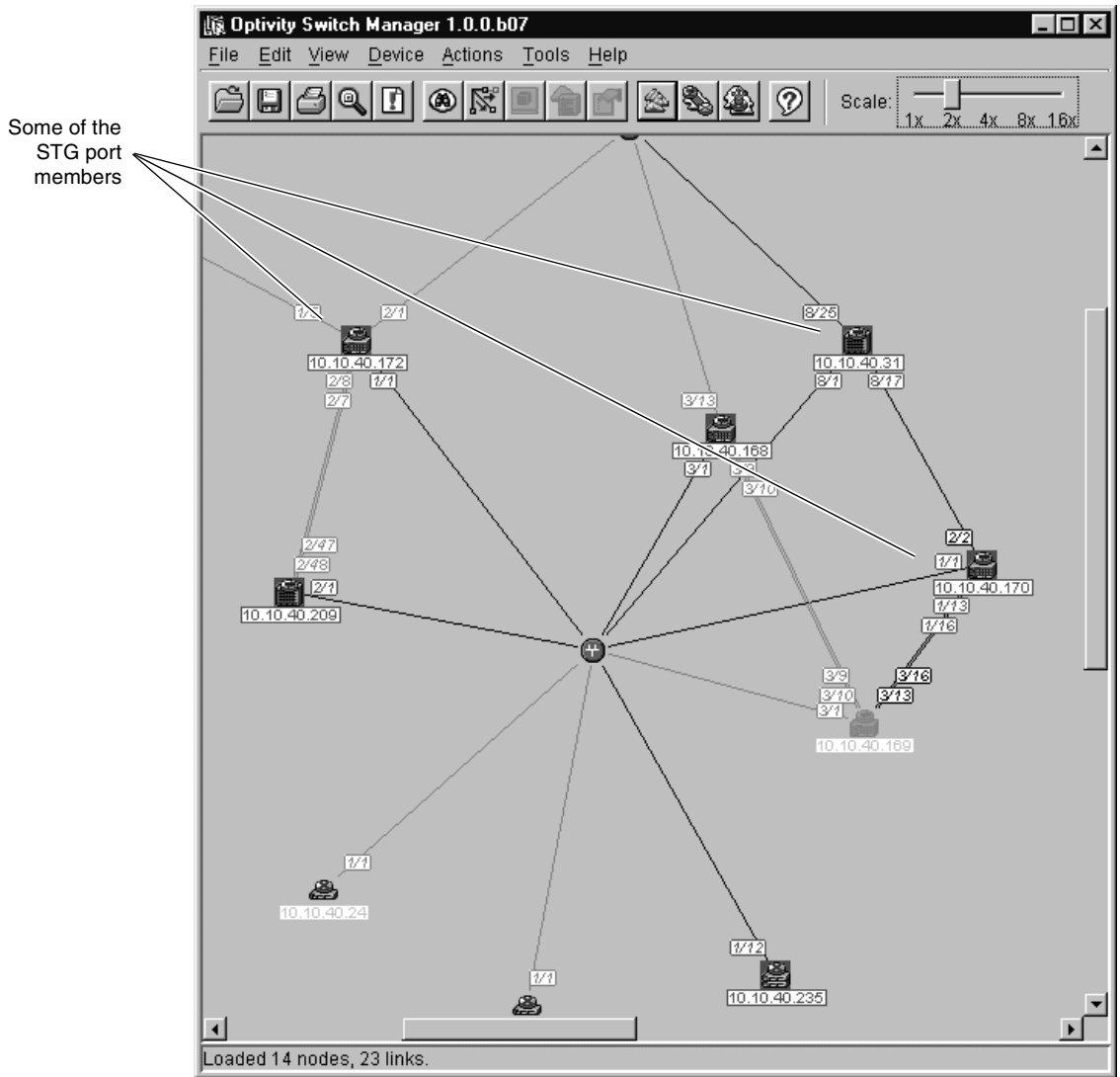
When you select an STG in the VLAN Manager navigation pane, you can view the devices and ports associated with that STG in the Optivity Switch Manager network topology map. This view can assist you in troubleshooting by identifying which ports are already members of the STG selected.

To view STG ports:

- 1** In the VLAN Manager navigation pane, choose an STG Members icon.
The STG Members table opens in the VLAN Manager contents pane.
- 2** From the VLAN Manager menu bar, choose View > Highlight Topology.
- 3** Return to the Optivity Switch Manager window.

The devices containing STG ports are highlighted ([Figure 38](#)) with a color and the device's IP address. Those device ports that are members of the STG are outlined in black.

Figure 38 Viewing STG port members



Viewing STG root configuration

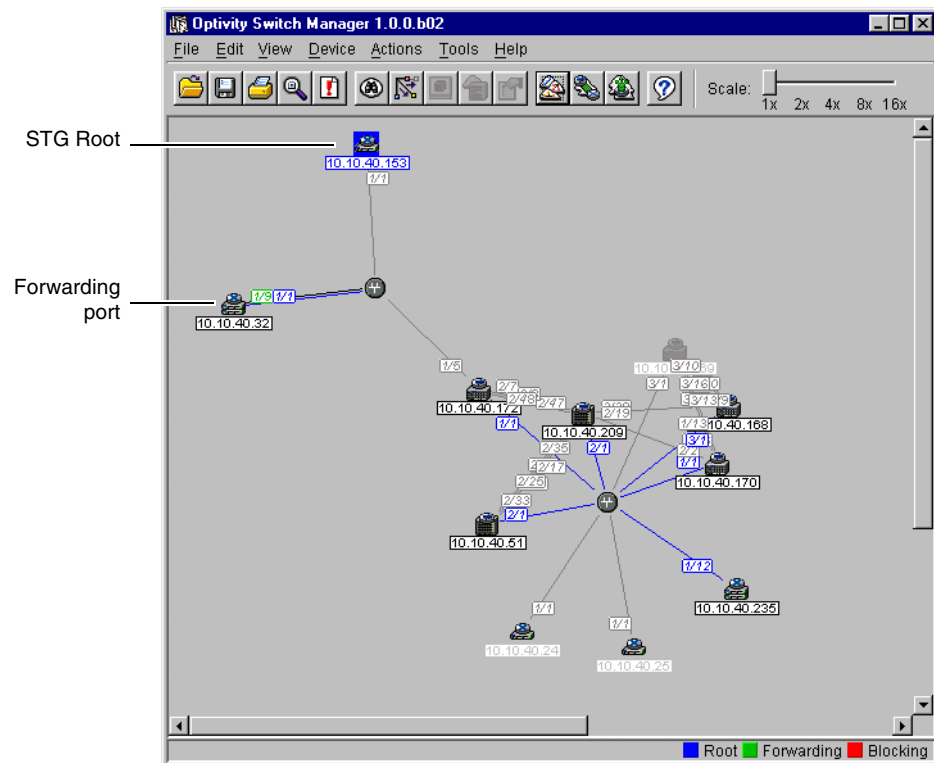
You can get a quick view of which device is the root of the spanning tree group and which ports are in the forwarding and blocking state by selecting the STG root icon.

To view STG root configuration in Optivity Switch Manager:

- 1 In the navigation pane, select an STG Root.
The Root table opens in the contents pane.
- 2 From the VLAN Manager menu bar, choose View > Highlight Topology.
- 3 Return to the Optivity Switch Manager window.

The highlighted topology view (Figure 39) opens in the Optivity Switch Manager contents pane with the root displayed.

Figure 39 Root topology displayed in the Optivity Switch Manager contents pane



In [Figure 39](#), the root of the STG is 10.10.40.153, and the port in forwarding state is Port 9 on Slot 1 of 10.10.40.32.



Note: Update the View > Highlight topology periodically to refresh the topology display, because ports may change from forwarding to blocking and vice versa.

Chapter 5

Using MultiLink Trunking Manager

MultiLink Trunking is a point-to-point connection that aggregates multiple ports so that they logically act like a single port with the aggregated bandwidth. Grouping multiple ports into one logical link allows you to achieve higher aggregate throughput on a switch-to-switch or server-to-server application.

This chapter describes using MultiLink Trunking Manager to manage single and multiple device configurations on switches. The chapter includes the following information:

- [What is MultiLink Trunking Manager? \(next\)](#)
- [Starting MultiLink Trunking Manager \(page 100\)](#)
- [MultiLink Trunking Manager window \(page 101\)](#)
- [Using MultiLink Trunking Manager \(page 106\)](#)
- [Managing MultiLink Trunks \(MLTs\) \(page 111\)](#)
- [Highlighting devices and MLT links in Optivity Switch Manager \(page 118\)](#)

For more information about MLT concepts, refer to *Networking Concepts for the Passport 8000 Series Routing Switch* and *Networking Concepts for the Passport 1000 Series Routing Switch Release 2.0*.

What is MultiLink Trunking Manager?

MultiLink Trunking Manager enables you to configure and monitor MultiLink Trunks (MLTs) across a single device or two adjacent devices. In MultiLink Trunking Manager, you can configure an MLT before you physically connect the ports.

[Table 27](#) lists the number of MLTs available with each supported switch type.

Table 27 Maximum number of MLTs supported in different switches

Switch	Maximum number of MLTs
Passport 1000 Series switch	8
Passport 8100 switch	6
Passport 8600 switch	32
BayStack 450 switch	6
Business Policy Switch 2000	6

MultiLink Trunking Manager features

MultiLink Trunking Manager supports devices that implement the rcVlan and rcMlt MIB groups.

MultiLink Trunking Manager allows you to:

- Create, delete, or modify MLTs across one or two devices.
- View MLT configuration information such as port and MLT membership.
- View MLT links in the network topology map.

Starting MultiLink Trunking Manager

To start MultiLink Trunking Manager:

➔ Do one of the following:

- From the Optivity Switch Manager menu bar, choose Tools > MultiLink Trunking Manager.
- On the keyboard, press [F3].
- On the Optivity Switch Manager toolbar, click the MultiLink Trunking Manager toolbar button.

The MultiLink Trunking Manager window opens ([Figure 40](#)).

MultiLink Trunking Manager window

The MultiLink Trunking Manager window contains the parts identified in (Figure 40).

Figure 40 MultiLink Trunking Manager window

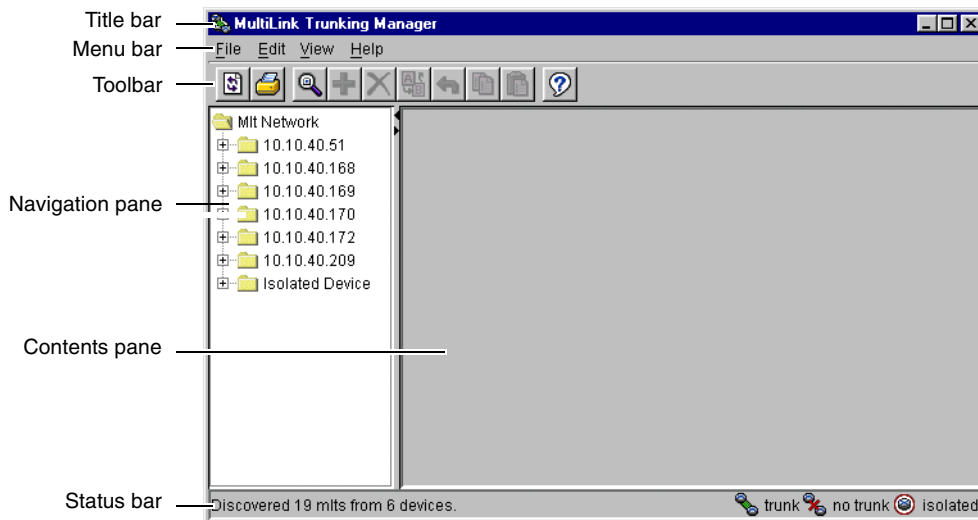


Table 28 describes the parts of the MultiLink Trunking Manager window.

Table 28 MultiLink Trunking Manager window parts

Part	Description
Title bar	Displays the submanager name.
Menu bar	Provides access to all MultiLink Trunking Manager commands.
Toolbar	Provides quick access to commonly-used MultiLink Trunking Manager commands.
Navigation pane	Provides a navigation tree showing MultiLink Trunking Manager network folder resources.
Contents pane	Displays MultiLink Trunking Manager tables.
Status bar	Displays status information, including discovery information, type of node highlighted, and command status.

Menu bar

The menu bar provides menus and commands for operating MultiLink Trunking Manager. Many of the commands also have associated shortcut keys. [Table 29](#) lists the MultiLink Trunking Manager commands.

Table 29 MultiLink Trunking Manager submenus

Menu	Command	Shortcut key	Description
File	Reload	[Ctrl]+R	Reloads the MultiLink Trunking Manager information.
	Save Diagnostic Information	[Ctrl]+S	Saves the current MultiLink Trunking Manager information.
	Print	[Ctrl]+P	Opens the Print dialog box, where you enter print parameters.
	Close		Closes MultiLink Trunking Manager.
Edit	Undo Changes	[Ctrl]+Z	Reverses any changes you made to a record.
	Copy	[Ctrl]+C	Copies the contents of the selected cell.
	Paste	[Ctrl]+V	Pastes the cell contents when you select a new location.
	Insert		Opens the Insert dialog box, where you insert an MLT on a selected device.
	Delete		Removes a selection and displays a message box to confirm deletion of the selected MLT.
	Apply Changes		Applies changes made to your MLT configuration to the device configuration file.
View	Find	[Ctrl]+F	Opens the Find dialog box, where you set parameters to find matching entries in your network.
	Highlight Topology		Highlights MLT items in the Optivity Switch Manager contents pane.
Help	Audit		Queries the network topology to report any discrepancies.
	Using		Opens a Web browser and loads help files.
	Online Support		Opens a Web browser that loads the Nortel Networks Customer Support Web page.
	About MultiLink Trunking Manager		Displays information about MultiLink Trunking Manager.

Toolbar

The MultiLink Trunking Manager toolbar has the same buttons as Optivity Switch Manager and the other submanagers. For information about the toolbar buttons available in MultiLink Trunking Manager, refer to [Table 5 on page 36](#).

Navigation pane

MultiLink Trunking Manager displays devices and adjacent devices in a tree structure. The MultiLink Trunking Manager navigation tree ([Figure 40](#)) is located on the left side of the window and contains branches with the IP address of devices discovered by Optivity Switch Manager.

From the navigation tree in the navigation pane, select the folder for which you want to view MLT information, or use the Edit > Print command to print the navigation tree.

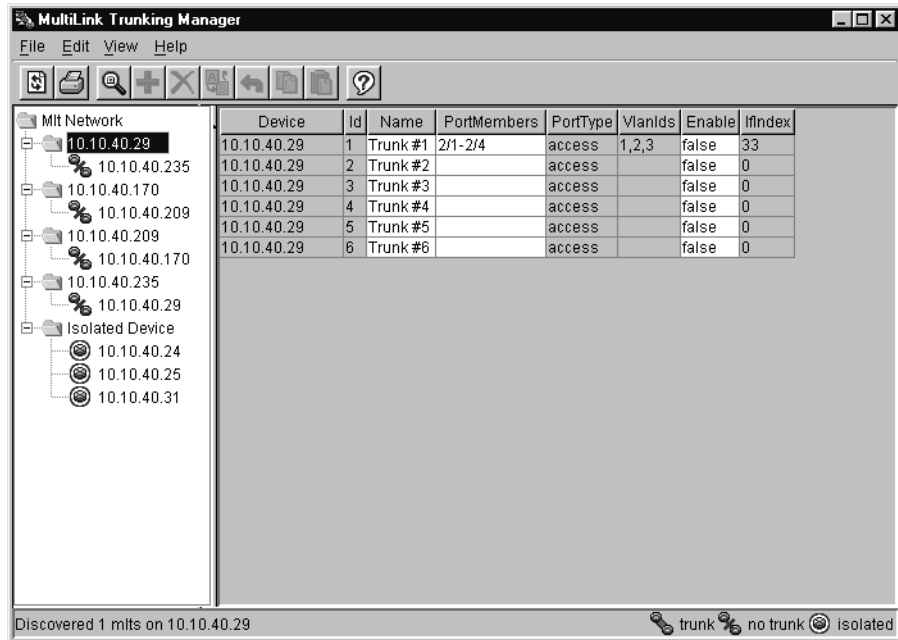
Contents pane

When you choose a folder in the navigation pane, its contents are shown in the contents pane.

To view the folder in the contents pane:

→ In the navigation pane, select a Network folder.

In [Figure 41](#), the contents of the 10.10.40.29 folder are displayed as a table in the contents pane.

Figure 41 Contents pane

Status bar

The MultiLink Trunking Manager status bar (see [Figure 40](#) on page 101) is located at the bottom of the MultiLink Trunking Manager window and has two fields. [Table 30](#) describes the fields in the MultiLink Trunking Manager status bar.

Table 30 MultiLink Trunking Manager status bar fields

Field	Description
Message	Located on the left, the message field displays information about the following: <ul style="list-style-type: none"> Optivity Switch Manager and submanager operations MLT discovery information
Icon	Located on the right, the icon field provides a legend for the types of MLTs: <ul style="list-style-type: none"> Trunk No trunk Isolated

Finding network resources

To find a network resource in the navigation or contents pane:

- 1 Click any device in the navigation pane or any text box in the contents pane, and do one of the following:
 - From the MultiLink Trunking Manager menu bar, choose Edit > Find.
 - On the keyboard, press [Ctrl]+F.
 - On the MultiLink Trunking Manager toolbar, click Find.

The Find dialog box opens (Figure 42).

Figure 42 Find dialog box



- 2 In the Find text box, type the text or number you are searching for.
- 3 In the In section, click Tree to search the navigation tree or Table to search the contents pane.
- 4 Click Next.

MultiLink Trunking Manager starts its search and highlights the first match that it finds, or displays a message that it found no matches.

- 5 If a first match was found, click Next to find each subsequent match, or click Previous to go back to your last match.

Using MultiLink Trunking Manager

In the MultiLink Trunking Manager navigation pane, the navigation tree shows the IP addresses of discovered devices. Icons associated with IP addresses on the branches indicate the following types of MLT:

- Trunk—a switch that links to another device in the network and has MLT configurations.
- No trunk—a switch that links to another device in the network but does not have an active MLT configured.
- Isolated—a switch connected only to a hub.

Viewing trunk connections

You can view the trunk connections for an MLT and configure new trunks to increase bandwidth.

To view trunk connections:

- ➔ In the navigation pane, select a device that is represented by a trunk icon.

The Trunk table opens in the contents pane ([Figure 43](#)).

Figure 43 Trunk table

The screenshot shows the MultiLink Trunking Manager application window. On the left is a tree view of the network topology. The right pane displays a table of discovered MLT instances. The status bar at the bottom indicates that 2 MLTs were discovered on the 10.10.40.172 and 10.10.40.209 network segments.

Device	Id	Name	PortMembers	PortType	VlanIds	Enable	IfIndex
10.10.40.172	2	172-209	2/7-2/8	access	22	false	97
10.10.40.209	2	172-209	2/47-2/48	access	22	false	4097

Table 31 describes the fields in the Trunk table.

Table 31 Trunk table fields

Field	Description
Device	IP address, system name, or host name of the device.
Id	Number of the MLT (assigned by MultiLink Trunking Manager).
Name	Name given to the MLT.
PortMembers	Ports that are assigned to the MLT.
PortType	Type of port on the MLT (access or trunk).
VlanIds	VLAN(s) to which the ports belong.
Enable	Indicates whether the MLT is enabled (true) or disabled (false).
IfIndex	Interface index, a number from 96 to 4097, that identifies the MLT to the software.

Viewing no trunk configurations

No trunk configurations are links between two devices that are not an MLT. To have an MLT or trunk connection, there must be more than one connection between two devices. Often No trunk configurations are single links between two devices.

To view No trunk configurations:

- ➔ In the MultiLink Trunking Manager navigation pane, select a device IP address above the IP address represented by a no trunk icon.

The No Trunk table (Figure 44) opens in the contents pane.

Figure 44 No Trunk table

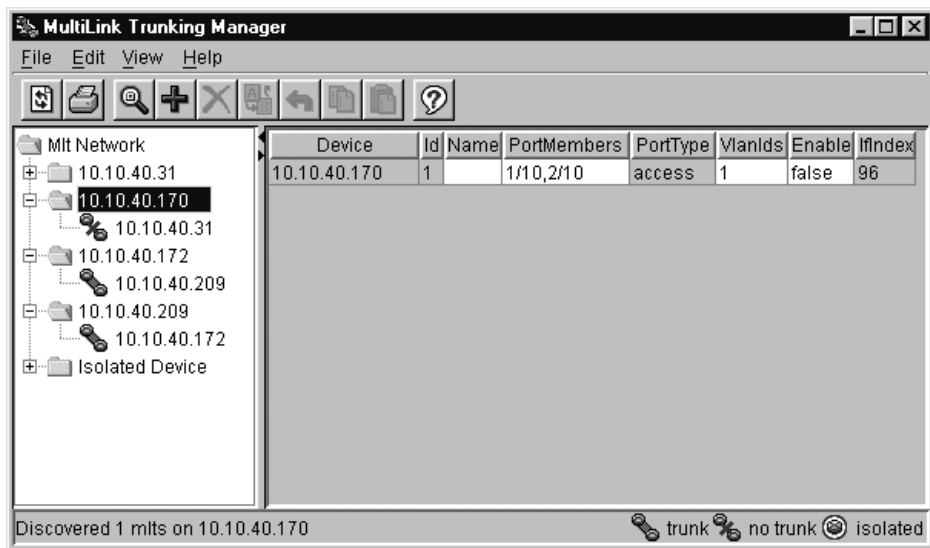


Table 32 describes the fields in the No Trunk table.

Table 32 No Trunk table fields

Fields	Description
Device	IP address, system name, or host name of the device
Id	Number of the MLT.
Name	Name given to the MLT.

Table 32 No Trunk table fields (continued)

Fields	Description
PortMembers	Ports that are assigned to the MLT.
PortType	Type of port on the MLT (access or trunk).
VlanIds	VLAN(s) to which the ports belong.
Enable	Whether the MLT is enabled (true) or disabled (false).
IfIndex	Interface index, a number from 96 to 4097, that identifies the MLT to the software.

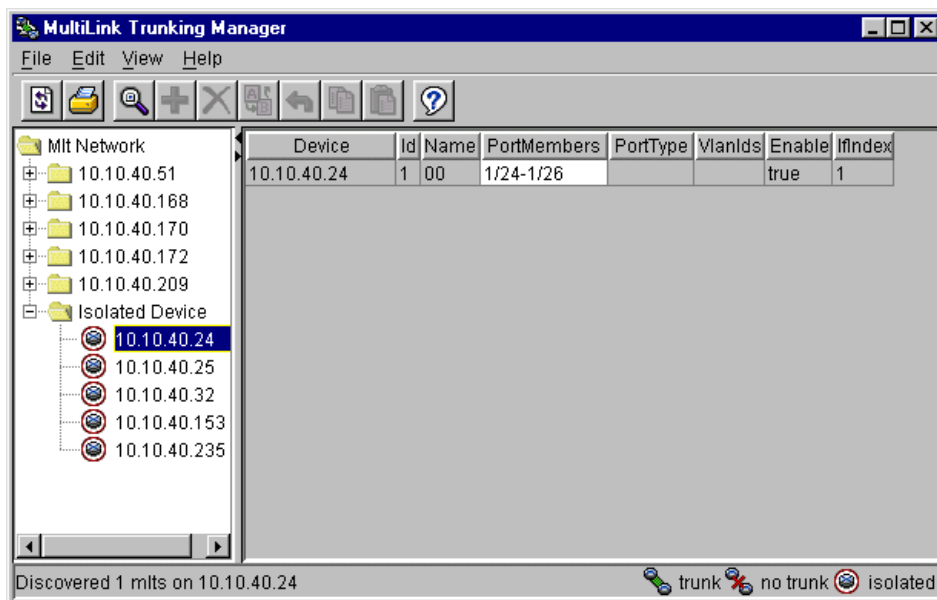
Viewing isolated devices

Isolated devices have one or more connections to a hub or bus, but are not connected to another switch.

To view the isolated devices:

- ➔ In the MultiLink Trunking Manager navigation pane, select an isolated device.

The Isolated Device table opens in the contents pane ([Figure 45](#)).

Figure 45 Isolated Device table

[Table 33](#) describes the fields in the Isolated Device table.

Table 33 Isolated Device table fields

Field	Description
Device	IP address, system name, or host name of the device.
Id	Number of the MLT.
Name	Name given to the MLT.
PortMembers	Ports that are assigned to the MLT.
PortType	Type of port on the MLT (access or trunk).
VlanIds	VLAN(s) to which the ports belong.
Enable	Indicates whether the MLT is enabled (true) or disabled (false).
IfIndex	Interface index, a number from 96 to 4097, that identifies the MLT to the software.

Managing MultiLink Trunks (MLTs)

This section contains information about the following common operations you can perform using MultiLink Trunking Manager:

- Creating an MLT (next)
- Viewing port information ([page 115](#))
- Editing a port on an MLT ([page 116](#))
- Deleting an MLT ([page 117](#))
- Editing an MLT ([page 117](#))

Creating an MLT

To enable an MLT, the device must have more than one connection to another device. With MultiLink Trunking Manager, you can create an MLT on a device and then physically connect the ports, or you can connect the ports first and then configure the MLT.

Creating an MLT with one device

When you create an MLT with one device, MultiLink Trunking Manager considers only the ports that are available on the one device. After you create an MLT on one device, you must also configure and connect the ports in the second device before enabling the MLT. You cannot configure an MLT on an isolated device.

To create a new MLT with one device selected:

- 1** Select a device from the first (folder) level of the MultiLink Trunking Manager navigation pane.

The Device table opens in the contents pane.

- 2** Do one of the following:
 - From the MultiLink Trunking Manager menu bar, choose Edit > Insert.
 - On the MultiLink Trunking Manager toolbar, click Insert.

The Insert MLT dialog box opens ([Figure 46](#)).

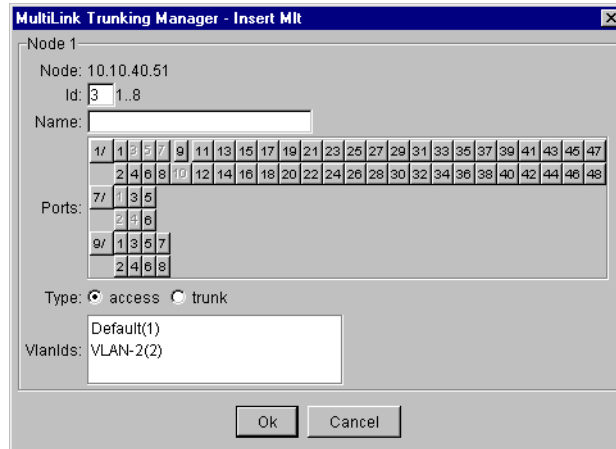
Figure 46 Insert MLT dialog box — one device selected

Table 34 describes the items in the Insert MLT dialog box.

Table 34 Insert MLT dialog box items for a single device

Item	Description
Node	IP address of the first network device configured on the MLT.
Id	Unique identifier for the MLT, which is automatically assigned by MultiLink Trunking Manager.
Name	User-defined name of the node on the MLT.
Ports	Ports enabled on the MLT.
Type	One of the following types of MLT: <ul style="list-style-type: none"> Access Trunk The default is Access.
VlanIds	VLAN IDs found on the device.

- 3 In the Id text box, select the Id number for the MLT.
- 4 In the Name text box, type the name of the MLT.
- 5 In the Ports box, select the ports to be added to the MLT.
Inactive ports appear dimmed in the Ports box.

- 6 Select the MLT type option.
The default is Access.
- 7 In the VlanIds field, select the VLAN IDs that belong to the MLT port.
- 8 Click Ok.

Creating a new MLT on a pair of devices

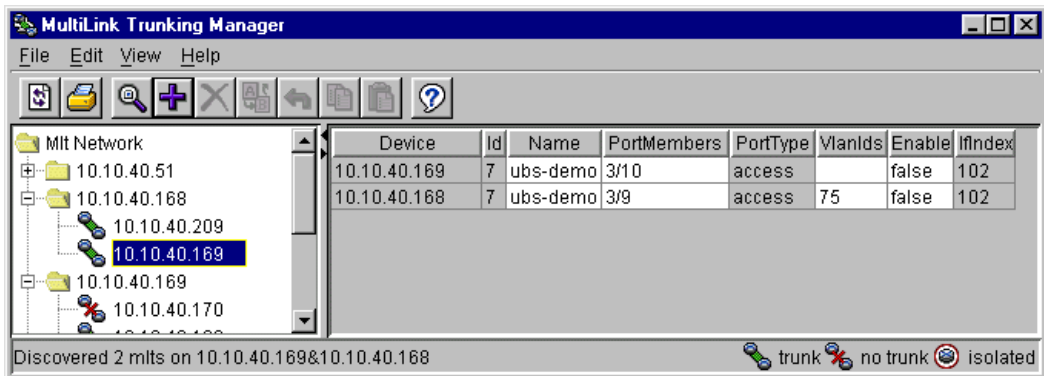
You can configure an MLT between two adjacent devices and MultiLink Trunking Manager considers port availability, type of port, and current links between both devices. You cannot configure an MLT on an isolated device.

To create a new MLT between two devices:

- 1 Select a device from the second level of the MultiLink Trunking Manager navigation pane.

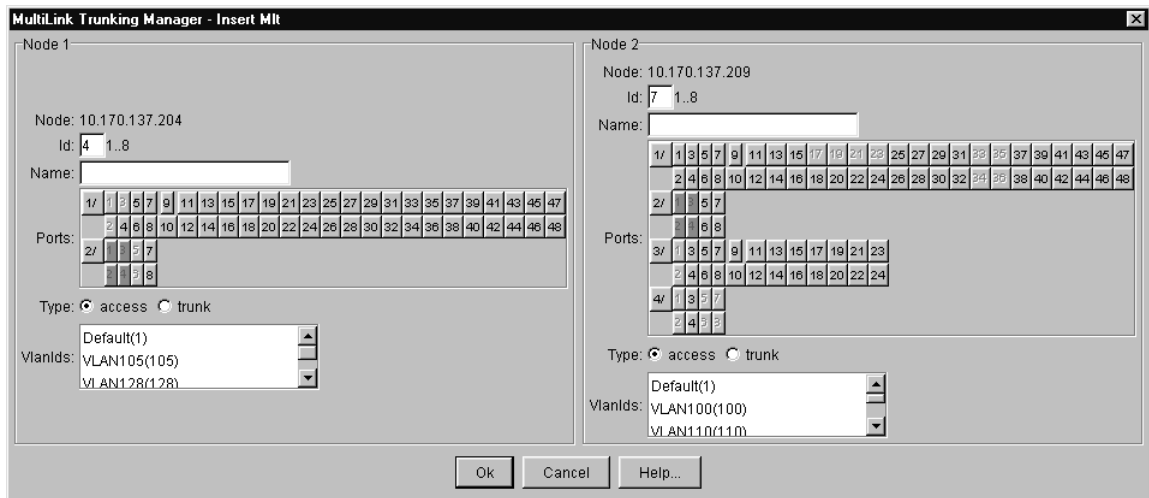
The Trunk table opens in the contents pane (Figure 47).

Figure 47 Trunk table for a pair of devices



- 2 Do one of the following:
 - From the MultiLink Trunking Manager menu bar, choose Edit > Insert.
 - On the MultiLink Trunking Manager toolbar, click Insert.

The Insert MLT dialog box opens (Figure 48).

Figure 48 Insert MLT dialog box — pair of devices selected

- 3 In the Id field for both nodes, select the same Id number for the MLT.
- 4 In one of the Name fields, type the name of the MLT.
The text you type appears in both Node Name fields.
- 5 In the Ports text box, select the ports to be added to the MLT.
In the Insert MLT dialog box, port numbers are highlighted in green to indicate that the ports are already connected between the two devices. Dimmed port numbers mean that those ports are inactive and cannot be included in the MLT.
- 6 Select the MLT type option.
The default is Access.
- 7 Select the VLAN IDs for both nodes to be included in the MLT port.



Note: Both nodes must belong to the same VLAN ID list.

- 8 Click Ok.
[Table 35](#) describes the items in the Insert MLT dialog box for a pair of devices.

Table 35 Insert MLT dialog box items for two nodes

Section	Item	Description
Node 1	Node	IP address of the first network device to be configured on an MLT.
	Id	Unique identifier for the MLT that is automatically assigned by MultiLink Trunking Manager.
	Name	User-defined name of the MLT. (When you type the name for one node, the name is automatically added to the other node.)
	Ports	Ports enabled on the MLT.
	Type	One of the following types of MLT: <ul style="list-style-type: none"> • Access • Trunk The default is Access.
	VlanIds	VLAN IDs found on the device.
Node 2	Node	IP address of the second network device configured on the MLT.
	Id	Unique identifier for the MLT that is automatically assigned by MultiLink Trunking Manager.
	Name	User-defined name of the MLT. (When you type the name for one node, the name is automatically added to the other node.)
	Ports	Ports enabled on the MLT.
	Type	One of the following types of MLT: <ul style="list-style-type: none"> • Access • Trunk The default is Access.
	VlanIds	VLAN IDs found on the device.

Viewing MLT port information

To view port information as you configure an MLT:

- ➔ In the Insert MLT dialog box, point to a port number.

The Port dialog box opens (Figure 49).

To open the Insert MLT dialog box, refer to [“Creating an MLT with one device” on page 111](#).

Figure 49 Port dialog box



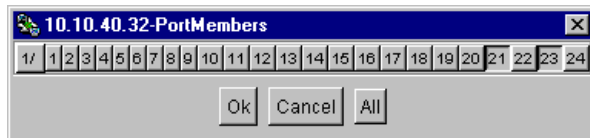
The information displayed in the dialog box includes the VLAN(s) and STG(s) to which the port belongs and the port link status. The port link status information includes whether the port is up or down and what other device/ports the port is connected to.

Editing a port on an MLT

To edit a port on an existing MLT:

- 1 In the navigation pane, select an MLT.
The MLT table opens in the contents pane.
- 2 In the table, double-click the PortMembers field.
The PortMembers dialog box opens ([Figure 50](#)).

Figure 50 PortMembers dialog box



- 3 Click the port numbers that you want to add or delete from the MLT.
Port numbers that appear to be pressed in are already being used, and port numbers that are dimmed are inactive and cannot be used.
- 4 Click Ok.

Deleting an MLT

To delete an MLT:

- 1 In the navigation pane, select a device and do one of the following:
 - From the MultiLink Trunking Manager menu bar, choose Edit > Delete.
 - On the MultiLink Trunking Manager toolbar, click Delete.

The Delete dialog box opens, asking you to confirm the deletion ([Figure 51](#)).

Figure 51 Delete dialog box



- 2 Click Yes.

Editing an MLT

To edit an MLT:

- 1 In the navigation pane, select a device.

The MLT table opens in the contents pane.
- 2 Double-click the field in the table.
- 3 Type information in the text boxes, or select from a list.
- 4 On the MultiLink Trunking Manager toolbar, click Apply Changes.

Your changes are displayed in bold.

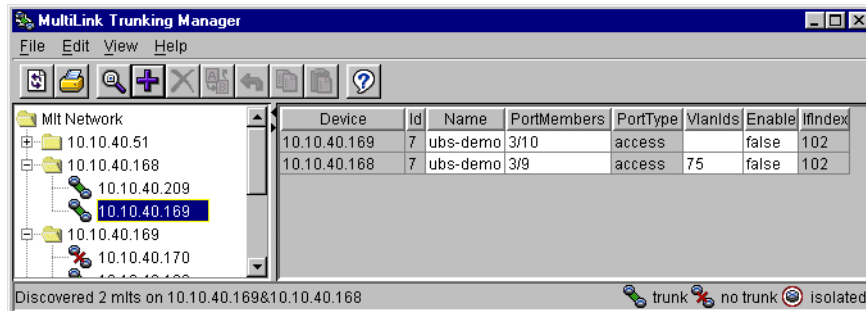
Highlighting devices and MLT links in Optivity Switch Manager

Optivity Switch Manager displays the topology information from MultiLink Trunking Manager in the contents pane.

To highlight devices and their MLT in Optivity Switch Manager:

- 1 In the navigation pane, select a device with a trunk (MLT) connection.
The Trunk table opens in the MultiLink Trunking Manager contents pane (Figure 52).

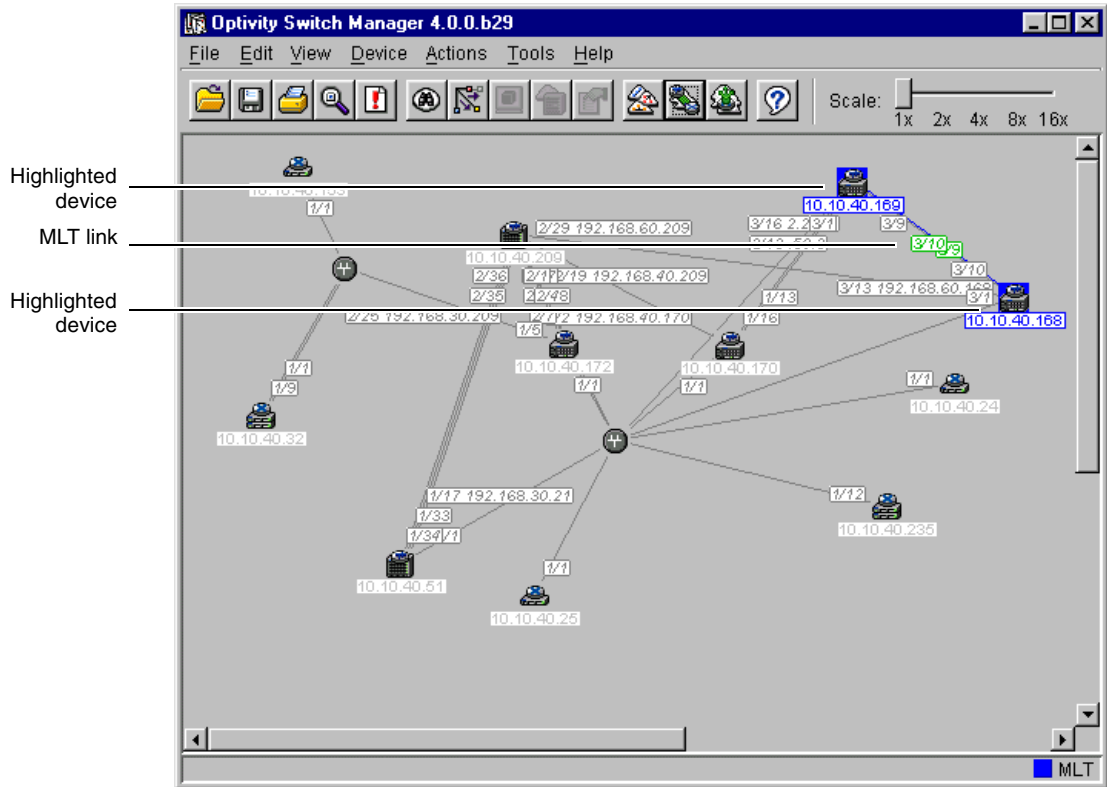
Figure 52 Trunk table



- 2 From the MultiLink Trunking Manager menu bar, choose View > Highlight Topology.
- 3 Return to the Optivity Switch Manager window.

The topology view opens in the Optivity Switch Manager contents pane with devices connected to the MLT highlighted in blue and the ports in the MLT highlighted in green (Figure 53).

If you select either a no trunk or an isolated device from the MultiLink Trunking Manager navigation pane, only the highlighted device appears in the Optivity Switch Manager contents pane.

Figure 53 Highlight topology view in Optivity Switch Manager

Chapter 6

Using Multicast Manager

This chapter describes Multicast Manager, which you can use to monitor multicast protocols deployed across the devices discovered by Optivity Switch Manager.



Note: To configure multicast groups, you must use Device Manager.

The chapter includes information about the following topics:

- [What is Multicast Manager? \(next\)](#)
- [Starting Multicast Manager \(page 123\)](#)
- [Multicast Manager window \(page 123\)](#)
- [Using Multicast Manager \(page 130\)](#)
- [Viewing Multicast Manager information in Optivity Switch Manager \(page 160\)](#)

What is Multicast Manager?

Multicast Manager allows you to view devices within a network that are participating in multicast groups and using multicast protocols, including group addresses, source subnets, forwarding paths, and last reporters in the group. Multicast Manager also allows you to view devices using a specific multicast protocols, the forwarding path to either all destination devices or a selected intermediate device.

Multicast protocols

Passport 1000 Series switches and Passport 8600 switches support the following multicast protocols:

- [Distance Vector Multicast Routing Protocol \(DVMRP\)](#)
- [Internet Group Management Protocol \(IGMP\)](#)
- [IGMP Snooping](#)

At its most basic, IP multicast is the communication of data and services to multiple destinations with a single transmission. Refer to *Networking Concepts for the Passport 1000 Series Routing Switch Release 2.0* and *Networking Concepts for the Passport 8000 Series Routing Switch* for more information on multicast and multicast protocols.

DVMRP

DVMRP advertises shortest-path routes to multicasting source networks (any network containing hosts with the capability to issue multicast datagrams). When DVMRP is coupled with IGMP membership, a multicast stream is learned from both the routers and directly attached hosts.

IGMP

IGMP allows a host to register group memberships with the local querier router to receive any datagrams sent to this router and targeted to a group with a specific IP Multicast address. The protocol also allows a router to learn the existence of group members on its directly attached networks. The router periodically sends a general query message to each of its local networks. Any host that is a member of any multicasting group identifies itself by a sending a response.

IGMP Snooping

IGMP Snooping uses IGMP messages to prune group membership per port within a VLAN. The switch listens to group reports for each port and builds a database of multicast group members per port. Only those ports that are specified in the database receive multicast traffic, instead of all the ports in the VLAN.

Multicast Manager features

Multicast Manager supports devices that implement rcVlanIgmP Snoop and/or igmp, rcIpDvmrp, dvmrp, and ipMRoute MIB groups.

Multicast Manager allows you to:

- Display information on the multicast protocols configured and enabled on the devices discovered by Optivity Switch Manager.
- Highlight all devices in the topology network map if the multicast protocol is selected from the Multicast Manager navigation tree.
- Provide information about multicast groups with active members, including information on group address, source subnet, and last reporters.
- Display the multicast forwarding path for a selected source/group to all destination devices or to a selected intermediate device.

Starting Multicast Manager

To start Multicast Manager:

→ Do one of the following:

- From the Optivity Switch Manager menu bar, choose Tools > Multicast Manager.
- On the keyboard, press [F4].
- On the Optivity Switch Manager toolbar, click Multicast Manager.

The Multicast Manager window opens ([Figure 54](#)).

Multicast Manager window

The Multicast Manager window contains the parts identified in [Figure 54](#).

Figure 54 Multicast Manager window

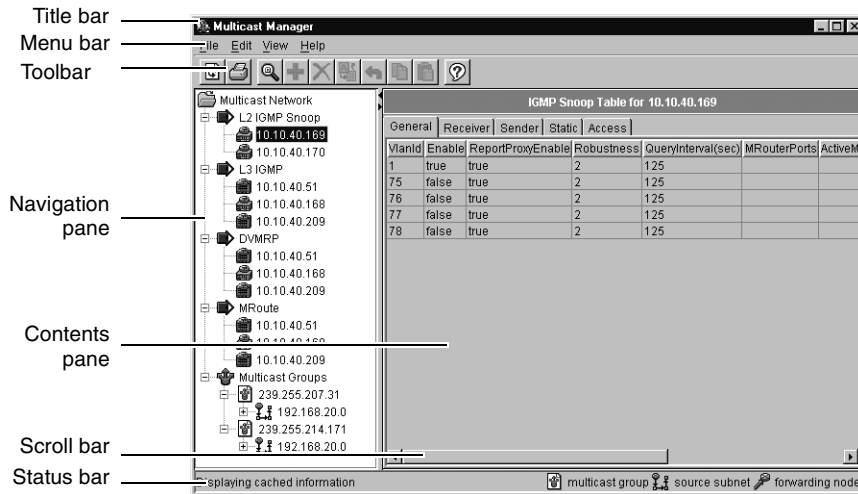


Table 36 describes the parts of the Multicast Manager window.

Table 36 Multicast Manager window parts

Part	Description
Title bar	Displays the submanager name.
Menu bar	Provides access to all Multicast Manager commands.
Toolbar	Provides quick access to commonly-used Multicast Manager commands.
Navigation pane	Provides a navigation tree showing Multicast Manager protocols and groups.
Contents pane	Displays information selected in the navigation pane.
Scroll bar	Provides access to an entire table, folder at the bottom of the navigation tree, or other text that spans an area larger than the window.
Status bar	Displays status information, including the command description from a tool tip, and a key to the type of Multicast groups discovered.

Menu bar

The menu bar provides menus for operating the Multicast Manager. [Table 37](#) describes the Multicast Manager menus and commands.

Table 37 Multicast Manager menus and commands

Menu	Command	Shortcut key	Purpose
File	Reload	[Ctrl]+R	Reloads the Multicast Manager information.
	Save Diagnostic Information	[Ctrl]+D	Saves the diagnostic information about the multicast configurations and groups.
	Print	[Ctrl]+P	Opens the Print dialog box, where you set parameters to print.
	Close		Closes Multicast Manager.
Edit	Undo Changes	[Ctrl]+Z	Reverses any changes you made to a record.
	Copy	[Ctrl]+C	Copies the contents of the selected cell.
	Paste	[Ctrl]+V	Pastes the cell contents when you select a new location.
	Insert	[Ctrl]+I	Opens the Insert dialog box.
	Delete	[Ctrl]+D	Removes a selection and displays a message box to confirm deletion.
	Apply Changes	[Ctrl]+A	Applies changes made to your multicast configuration to the device configuration file.
	Find	[Ctrl]+F	Opens the Find dialog box, where you set parameters to find matching entries in your network.
Note: In read only mode, except for the Find command, Edit options are unavailable (greyed-out).			

Table 37 Multicast Manager menus and commands (continued)

Menu	Command	Shortcut key	Purpose
View	Highlight Topology		Highlights the devices running the multicast protocol within the topology map in the Optivity Switch Manager contents pane, and highlights the multicast forwarding path from the source subnet. To view source subnets or forwarding devices, you must select the IP address associated with the subnet or device.
	Audit		Queries the network topology to report any discrepancies.
Help	Online Support		Opens a Web browser and loads the Nortel Networks Customer Support Web page.
	About Multicast Manager		Displays information about Multicast Manager.

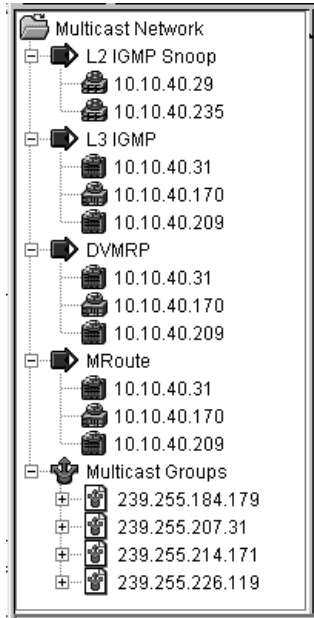
Toolbar

The toolbar includes the same buttons as Optivity Switch Manager and the other submanagers. For information about the toolbar buttons available in Multicast Manager, refer to [Table 5 on page 36](#).

Navigation pane

The Multicast Manager navigation pane ([Figure 55](#)) is on the left side of the window. It contains the protocol and group folders in the navigation tree. The first four branches of the navigation tree list the multicast protocols supported by the devices. The last branch lists the root of all active multicast groups, with the first level identifying the source subnets and the second level identifying the intermediate forwarding nodes.

In the navigation pane, you can select the folder for which you want to view multicast information, or use the Print command to print the navigation tree.

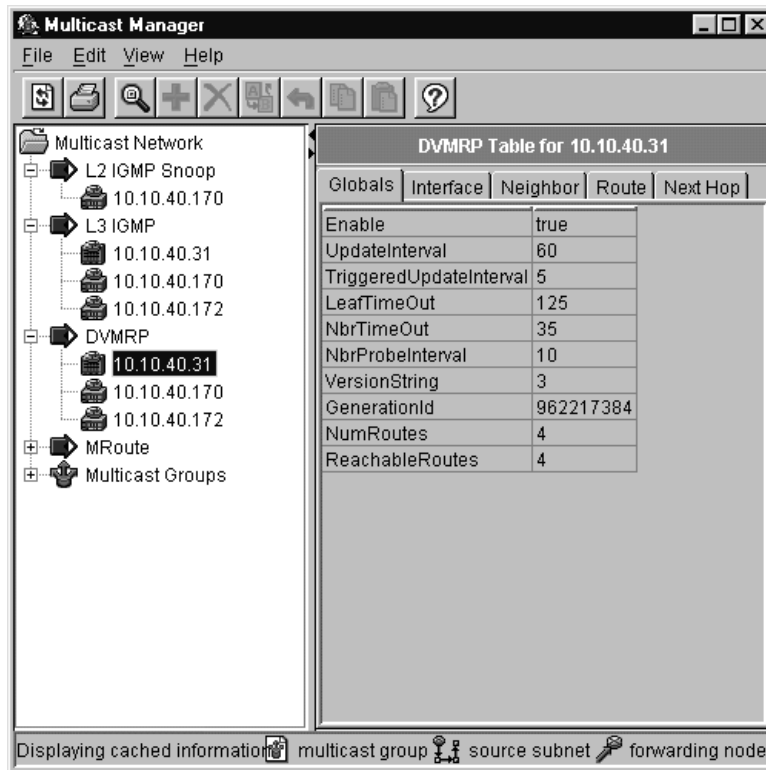
Figure 55 Multicast Manager navigation pane

Contents pane

When you select a network resource in the navigation pane, a table opens in the contents pane ([Figure 56](#)).



Note: In this release, tables are not available for multicast source subnet nodes and intermediate forwarding nodes from the navigation pane.

Figure 56 DVMRP Table in the contents pane

To view the multicast information in the contents pane:

- ➔ In the navigation pane, select a device icon from the list under the protocol.

The DVMRP table opens in the contents pane. The example in [Figure 56](#) shows the DVMRP information found on device 10.10.40.31.

Status bar

The Multicast Manager status bar is located at the bottom of the Multicast Manager window and contains two fields.

[Table 38](#) describes the fields in the Multicast Manager status bar.

Table 38 Multicast Manager status bar fields

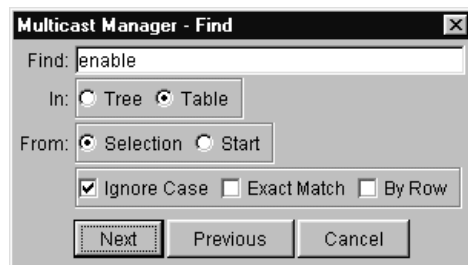
Field	Description
Message	Located on the left, the message field displays status information about operation results.
Icon	Located on the right, the icon field provides a legend for the type of end station receiving the multicast traffic. The icons represent: <ul style="list-style-type: none"> • A multicast group • A multicast source subnet • A multicast forwarding node

Finding a network resource

To find a network resource:

- 1 Click any device in the navigation pane, or in the table view, and do one of the following:
 - From the Multicast Manager menu bar, choose Edit > Find.
 - On the Multicast Manager toolbar, click Find.

The Find dialog box opens (Figure 57).

Figure 57 Find dialog box

- 2 In the Find text box, type the text or number for your search.
- 3 In the In section, click the Tree option to search the navigation pane, or click the Table option to search the contents pane.
- 4 Click Next.

Multicast Manager starts its search and highlights the first match it finds or displays a message that it found no matches.

- 5 If a first match was found, click Next to find each subsequent match, or click Previous to go back to your last match.

Using Multicast Manager

Multicast Manager displays the following multicast protocols and groups supported on the devices discovered in the network topology:

- Layer 2 IGMP Snoop
- Layer 3 IGMP
- DVMRP
- Multicast routes

The last group displayed is the Multicast Groups. Multicast groups are defined by a multicast address and are listed in Multicast Manager by their multicast address.

To open a new table, double-click the multicast address listed below the protocol.

Viewing IGMP Snoop groups

IGMP Snooping works at layer 2 in the network. You configure IGMP Snooping using Device Manager. All devices supported by Optivity Switch Manager can be configured for IGMP Snooping.

To view the information associated with IGMP Snoop groups:

- ➔ Select a device listed under the IGMP Snoop folder.

The IGMP Snoop Table opens with the General tab displayed (Figure 58).



Note: If a BayStack switch or a Business Policy Switch 2000 is selected, only the General tab is displayed.

Figure 58 IGMP Snoop Table

IGMP Snoop Table for 10.10.40.170									
General Receiver Sender Static Access									
VlanId	Enable	ReportProxyEnable	Robustness	QueryInterval(sec)	MRouterPorts	ActiveMRouterPorts	ActiveQuerier	QuerierPort	MRRouterExpiration
3	true	true	2	125			0.0.0.0	0/1	0

The IGMP Snoop Table contains five tabs that display information about IGMP snooping:

- [General tab](#) (next)
- [Receiver tab](#) (page 133)
- [Sender tab](#) (page 135)
- [Static tab](#) (page 137)
- [Access tab](#) (page 138)

General tab

The General tab ([Figure 59](#)) displays the settings for IGMP Snoop on the selected device.

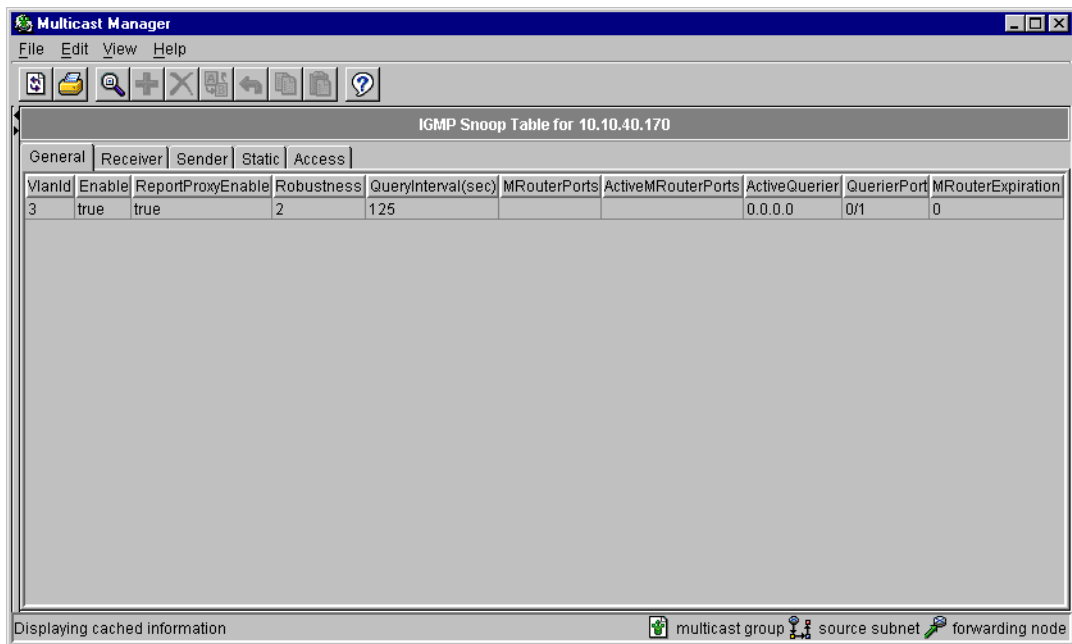
Figure 59 General tab

Table 39 describes the fields in the General tab.

Table 39 General tab fields

Field	Description
VlanId	VLAN ID of the VLAN.
Enable	Indicates whether IGMP snooping works only when a multicast router exists in the VLAN.
ReportProxyEnable	Whether or not the IGMP report proxy feature is enabled. When this feature is enabled, reports are forwarded from hosts to the multicast router once per group per query interval or when there is new group information. When this feature is disabled, all reports from different hosts are forwarded to multicast routers, and more than one group report may be forwarded for the same multicast group per query interval. The default is enabled.

Table 39 General tab fields (continued)

Field	Description
Robustness	Robust value (based on the network's tendency to lose data). This value, along with the query interval, is used to determine the group membership timeouts. It should be set to that of the multicast router in the network. If more than one multicast router is within a VLAN and the robust values are different, set the Passport switch to the highest value. The range is 2 to 255. The default is 2.
QueryInterval(sec)	In general, the time between queries sent to the host. this value is used to determine the multicast group membership timeouts. The real interval between queries is still dependent on the multicast router within the VLAN. Set this value to be the same as that of the multicast routers in the VLAN. If there are multiple multicast routers on the net, select the highest query interval value. The query interval is in seconds (1 to 65535) with a default of 125 seconds.
MRouterPorts	Ports that have been configured as Multicast Router Ports. Such ports provide connectivity but do not have to be directly attached to a multicast router so the multicast data and group reports are forwarded to the router.
ActiveMRouter	Active Multicast Router Ports are ports that provide connectivity but do not have to be directly attached to a multicast router. These ports include the Querier port and all ports in the forwarding state that were configured by the user, as well as those that were dynamically learned using receiving queries.
ActiveQuerier	IP address of the last querier (multicast router) of this VLAN that was heard by the switch.
QuerierPort	Port on which the LastQuerier is being heard.
MRouterExpiration	Time remaining before the multicast router is aged out. If the switch does not receive any queries before this time expires, it flushes out all group memberships known to the VLAN. The Query Max Response Interval (obtained from the Queries received) is used as the timer resolution.

Receiver tab

The Receiver tab ([Figure 60](#)) provides information about IGMP group receivers.

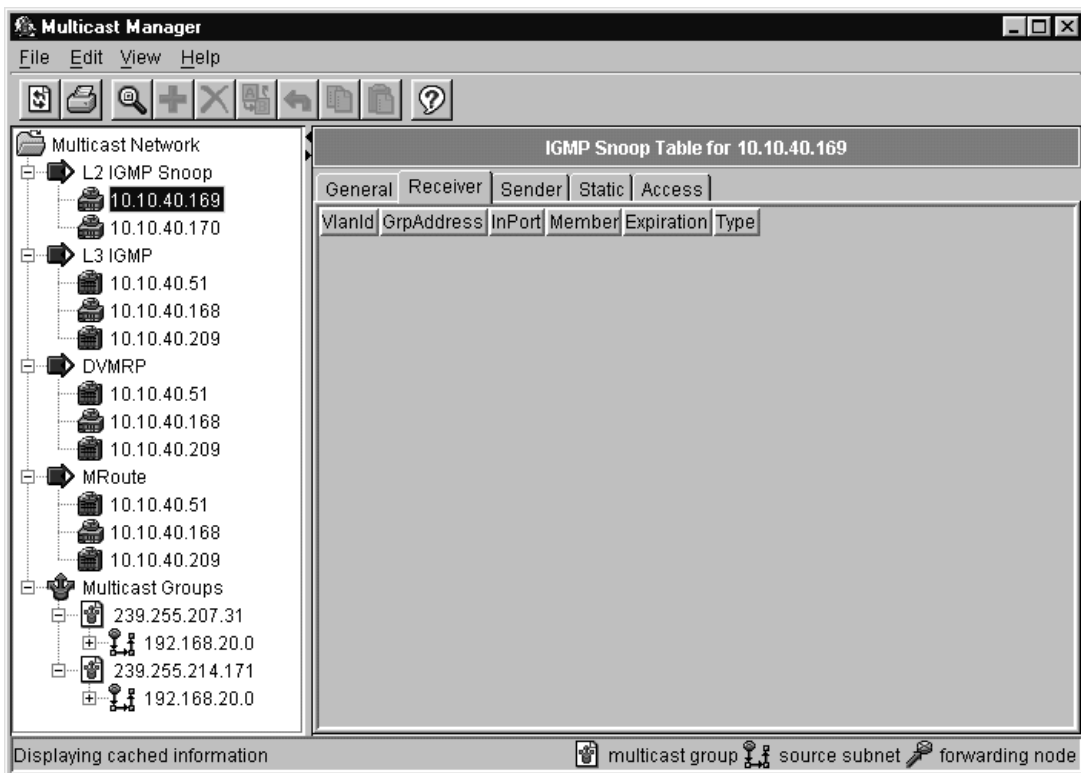
Figure 60 Receiver tab

Table 40 describes the fields in the Receiver tab.

Table 40 Receiver tab fields

Field	Description
VlanId	VLAN ID of the VLAN.
GrpAddress	Address of the multicast group to which the receiver subscribes.
InPort	Port where group membership was learned. If there are multiple members attached using the same port, only the last group reported is shown for the port.
Member	Source IP address of the member who joined.

Table 40 Receiver tab fields (continued)

Field	Description
Expiration	Time left until this member is aged out. This value is derived from the Robust Value, MaxResponse Time value, and Query Interval. The Query Max Response Interval (obtained from the Queries received) is used as the timer resolution. Increasing the Robust Value also increases the expiration value.
Type	Static or dynamic: <ul style="list-style-type: none"> • Static membership is configured by the user using the Multicast Static window. • Dynamic membership is what the switch learned from receiving group reports. An entry can change from static to dynamic if the switch learns of a membership dynamically through a static port. In this case, the entry is not deleted when the expiration value goes to zero; instead, its type goes back to “static.”

Sender tab

The Sender tab ([Figure 61](#)) displays information about the IGMP Snooper sender device.

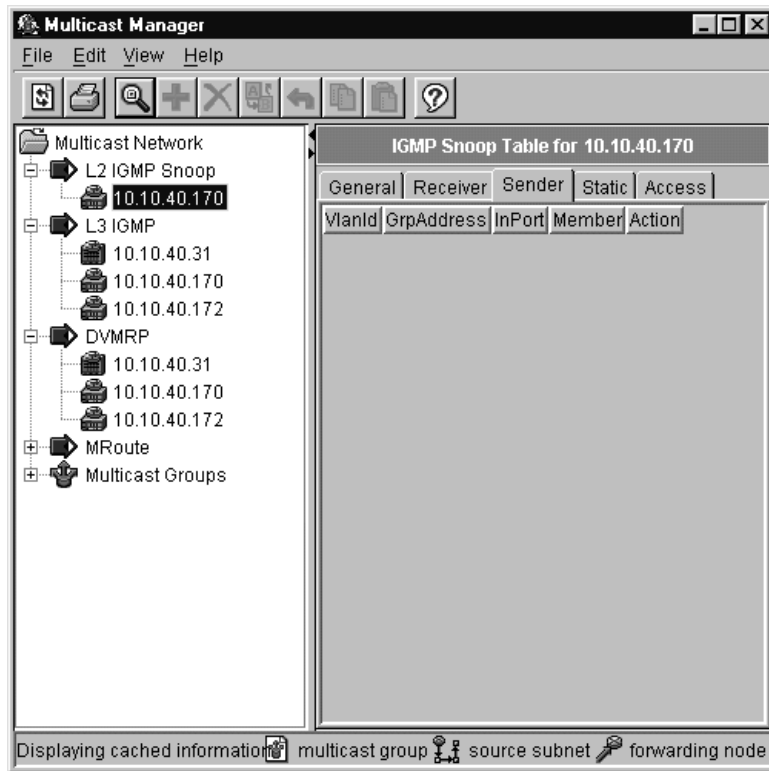
Figure 61 Sender tab

Table 41 describes the fields in the Sender tab.

Table 41 Sender tab fields

Field	Description
VlanId	VLAN ID of the ingress VLAN.
GrpAddress	Address of the multicast group that the sender is broadcasting.
InPort	Port where group membership was learned. If the source (sender) moves to another switch port, this field is not automatically updated.
Member	Source IP address of the member who joined.
Action	Last action you performed (flush group, flush entry, or none).

Static tab

The Static tab (Figure 62) displays information about the static entries created to forward IGMP Snoop data for a given multicast group.

Figure 62 Static tab

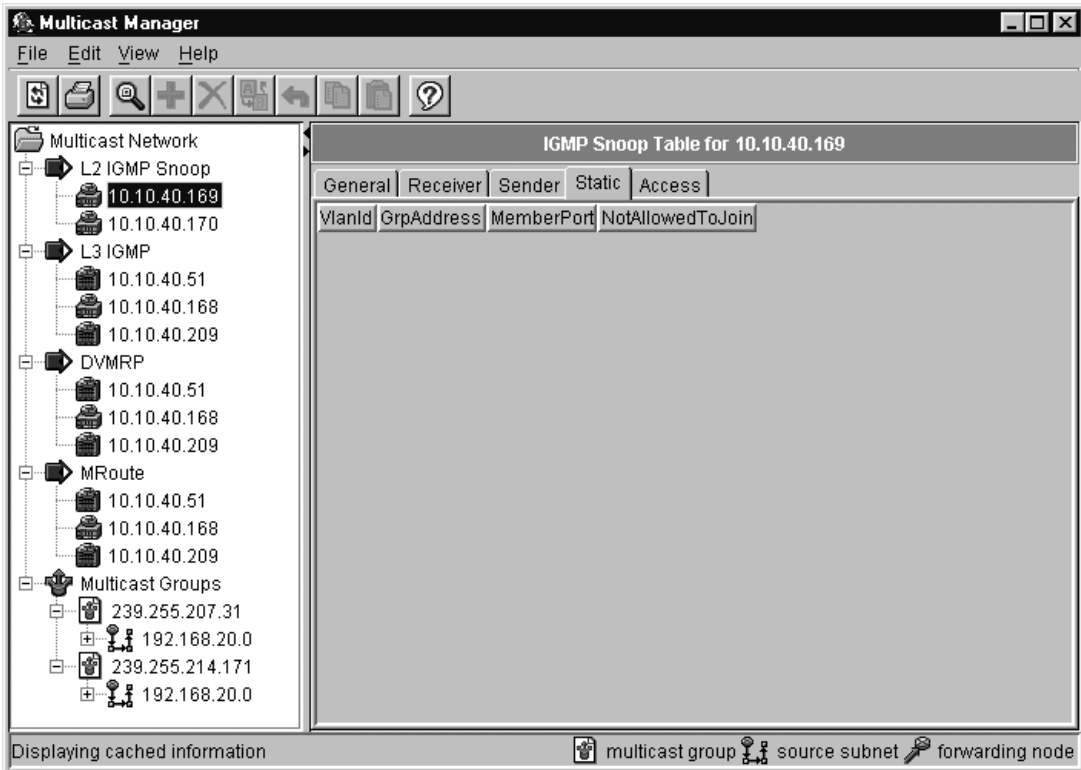


Table 42 describes the fields in the Static tab.

Table 42 Static tab fields

Field	Description
VlanId	VLAN ID of the VLAN.
GrpAddress	Multicast group address of the multicast stream.

Table 42 Static tab fields (continued)

Field	Description
MemberPort	Ports which redirect the multicast stream for this multicast group. The ports are member ports of the VLAN.
NotAllowedToJoin	Ports that do not receive the multicast stream for this multicast group.

Access tab

The Access tab (Figure 63) displays information about the multicast groups or range of multicast address that were either denied transmission, denied reception, or denied both transmission and reception of multicast traffic.

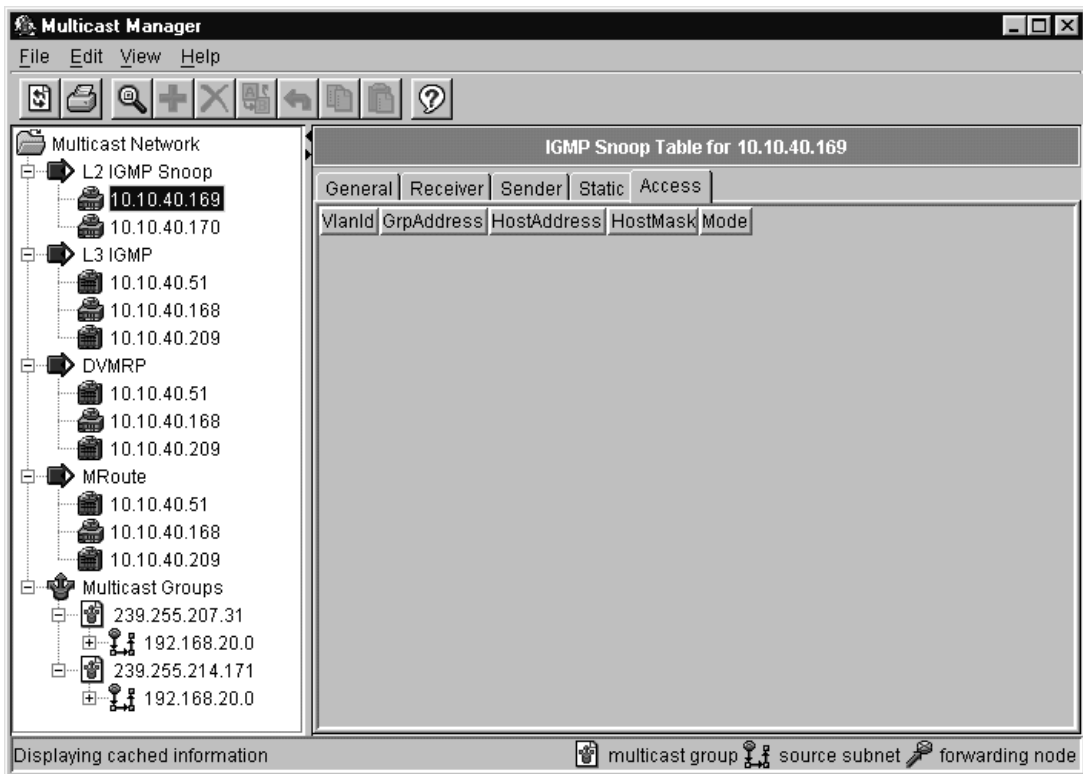
Figure 63 Access tab

Table 43 describes the fields in the Access tab.

Table 43 Access tab fields

Field	Description
VlanId	VLAN ID for the VLAN.
GrpAddress	Multicast group address of the multicast stream.
HostAddress	IP address of the host whose membership is to be controlled.
HostMask	Subnet mask of the host whose membership is to be controlled.
Mode	The host address mode, which can be one of the following: <ul style="list-style-type: none"> denyTx—deny transmit mode denyRx—deny receive mode denyBoth—deny transmit and receive mode

Viewing L3-IGMP information

Layer 3 IGMP allows an IP Multicast router to learn the existence of host group members on their directly connected subnets.

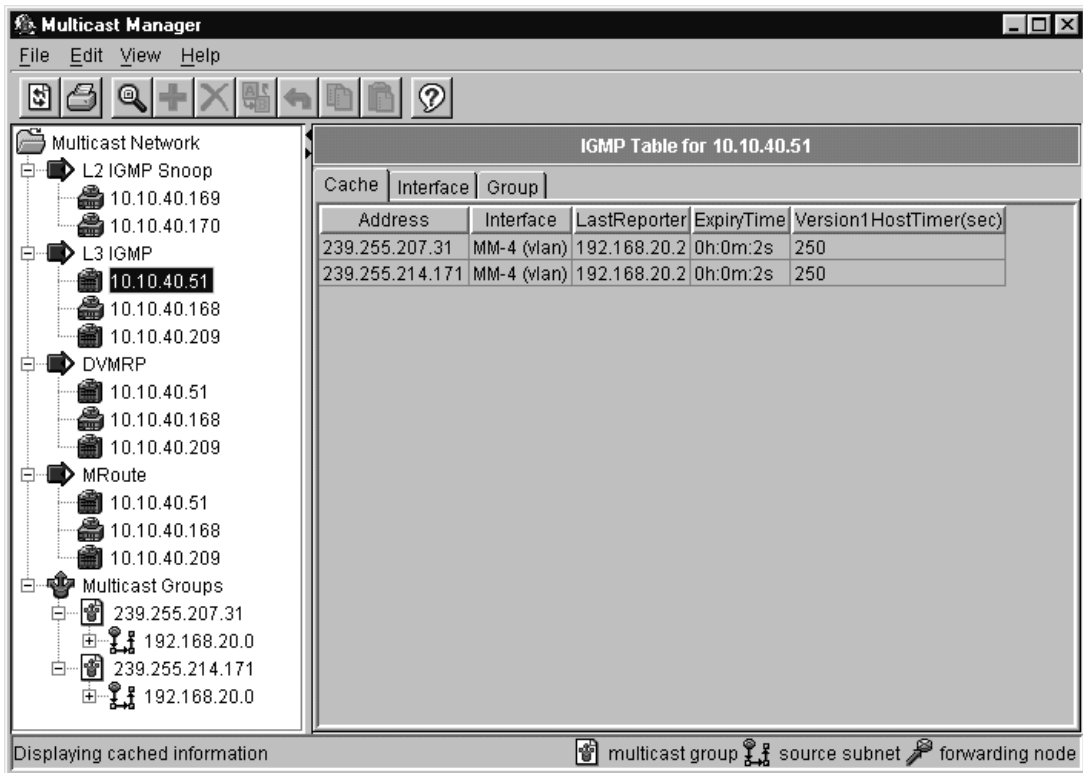
Passport 1000 Series switches and Passport 8600 switches support layer 3 IGMP.

To view L3-IGMP information:

- ➔ Select a device listed under the L3 IGMP icon.

The L3 IGMP table opens in the contents pane with the Cache tab displayed (Figure 64).

Figure 64 IGMP Table



The IGMP Table contains three tabs that display information about IGMP:

- [Cache tab](#) (next)
- [Interface tab](#) (page 142)
- [Group tab](#) (page 144)

Cache tab

The Cache tab ([Figure 65](#)) displays L3-IGMP cache information.

Figure 65 Cache tab

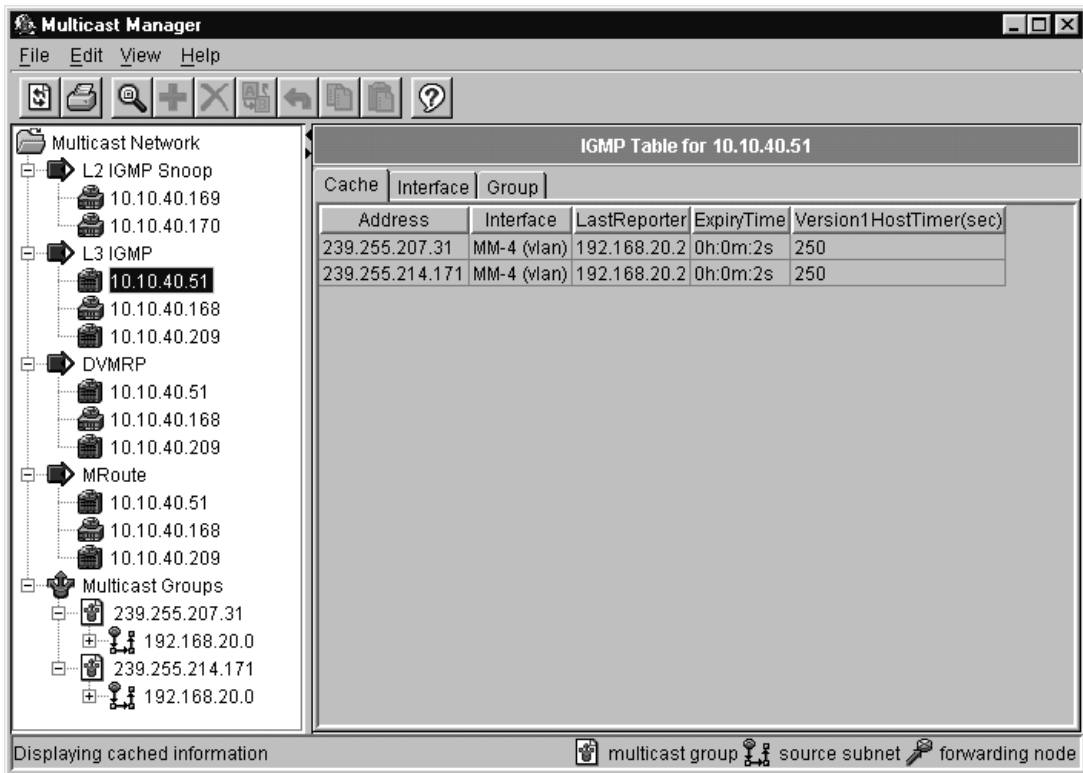


Table 44 describes the fields in the Cache tab.

Table 44 Cache tab fields

Field	Description
Address	IP multicast group address for which this entry contains information.
Interface	Interface from which the corresponding multicast group address is heard.
LastReporter	IP address of the source of the last membership report received for this IP multicast group address on this interface. If no membership report has been received, the object has the value 0.0.0.0.

Table 44 Cache tab fields (continued)

Field	Description
ExpiryTime	Amount of time (in seconds) remaining before this entry is aged out.
Version1HostTimer(sec)	Time remaining (in seconds) until the local router assumes that there are no longer any IGMPv1 members on the IP subnet attached to this router. Upon hearing an IGMPv1 Membership Report, this value is reset to the group membership timer. While this value is not zero, the router ignores any IGMPv2 Leave messages it receives for this group.

Interface tab

The Interface tab ([Figure 66](#)) displays statistics about the L3-IGMP interfaces used.

Figure 66 Interface tab (L3-IGMP partial view)

IGMP Table for 10.10.40.31					
Cache	Interface	Group			
Interface	QueryInterval(sec)	Status	Version	Querier	QueryMaxResponseTime
8/17	125	active	2	192.168.50.31	10
8/25	125	active	2	192.168.30.209	10

IGMP Table for 10.10.40.31				
Time(sec)	WrongVersionQueries	Joins	Robustness	LastMembQueryIntval
0	13276	2	1	
1	0	2	1	

[Table 45](#) describes the fields in the Interface tab.

Table 45 Interface tab fields

Field	Description
Interface	Interface on which IGMP is enabled.
QueryInterval(sec)	Frequency (in seconds) at which IGMP host query packets are transmitted on the interface. The range is from 1 to 65535. The default is 125.
Status	IGMP row status. When an interface has been assigned an IP address and DVMRP is enabled, status is shown as active. Otherwise, it is shown as notInService.
Version	Version of IGMP that is configured on the interface. For IGMP to function correctly, all routers on a LAN must be configured to run the same version of IGMP on that LAN.
Querier	Address of the IGMP querier on the IP subnet to which the interface is attached.
QueryMax ResponseTime(sec)	Maximum response time (in seconds) advertised in IGMPv2 general queries on this interface. Smaller values allow a router to prune groups faster. This value for IGMPv1 is not configurable and has a default value of 10 seconds.
WrongVersion Queries	Number of queries received with an IGMP version that does not match the interface. IGMP requires that all routers on a LAN be configured to run the same version of IGMP. If any queries are received with the wrong version, it indicates a version mismatch.
Joins	Number of times a group membership has been added on this interface; that is, the number of times an entry for this interface has been added to the cache table. This number gives an indication of the amount of IGMP activity over time.
Robustness	This value is equal to the number of expected query packet losses per serial query interval, plus 1. If a network is expected to lose query packets, increase the robustness value. The range is from 2 to 255 with a default value of 2. The default value of 2 means that one query per query interval may be dropped without the querier aging out.
LastMemQueryIntval	Maximum response time inserted into group-specific queries sent in response to leave group messages; also the time between group-specific query messages. Increasing this parameter increases the time before aging hosts on the network. It also increases the number of retransmits of group-specific queries. The range is from 1 to 255. The default value is 1.

Group tab

The Group tab (Figure 67) displays L3-IGMP multicast group information.

Figure 67 Group tab

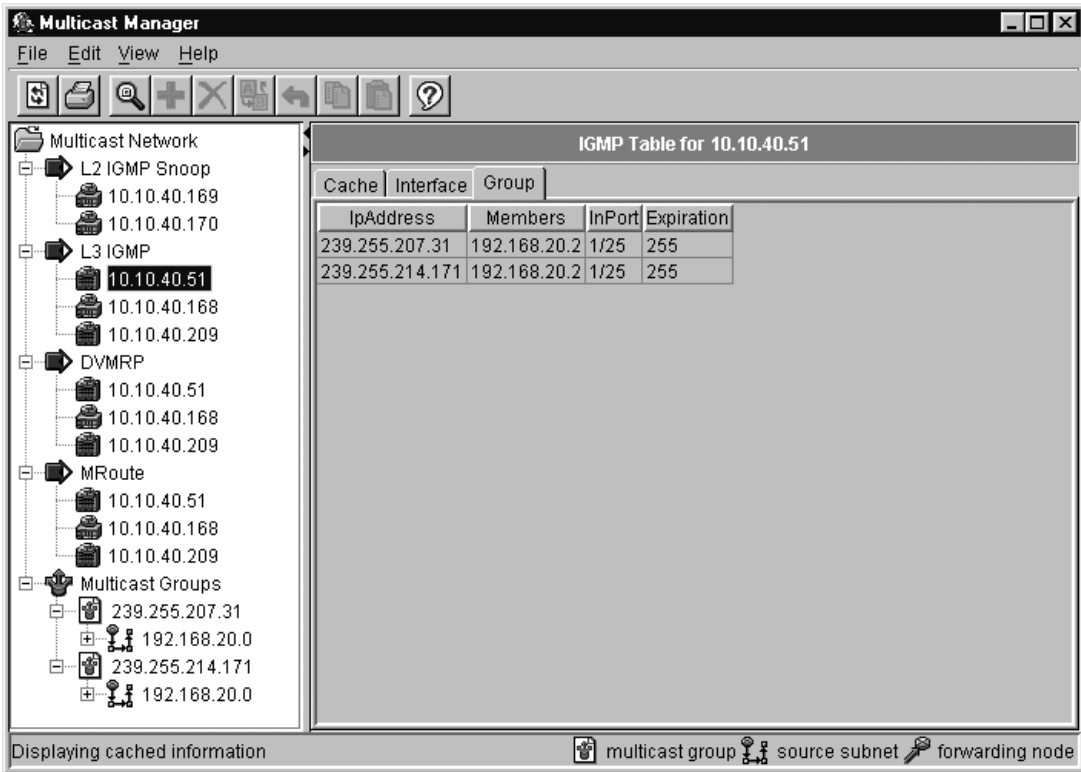


Table 46 describes the fields in the Group tab.

Table 46 Group tab fields

Field	Description
IpAddress	IP address (Class D), designated as the multicast group address, that members can join. A group address can be the same for many incoming ports.
Members	IP address of a member that has issued a group report for this group.

Table 46 Group tab fields (continued)

Field	Description
InPort	A unique value to identify a brouter interface or a logical interface (VLAN) that has received Group reports from various members.
Expiration	Time left before the group report expires on this port. This variable is updated when a group report is received.

Viewing DVMRP information

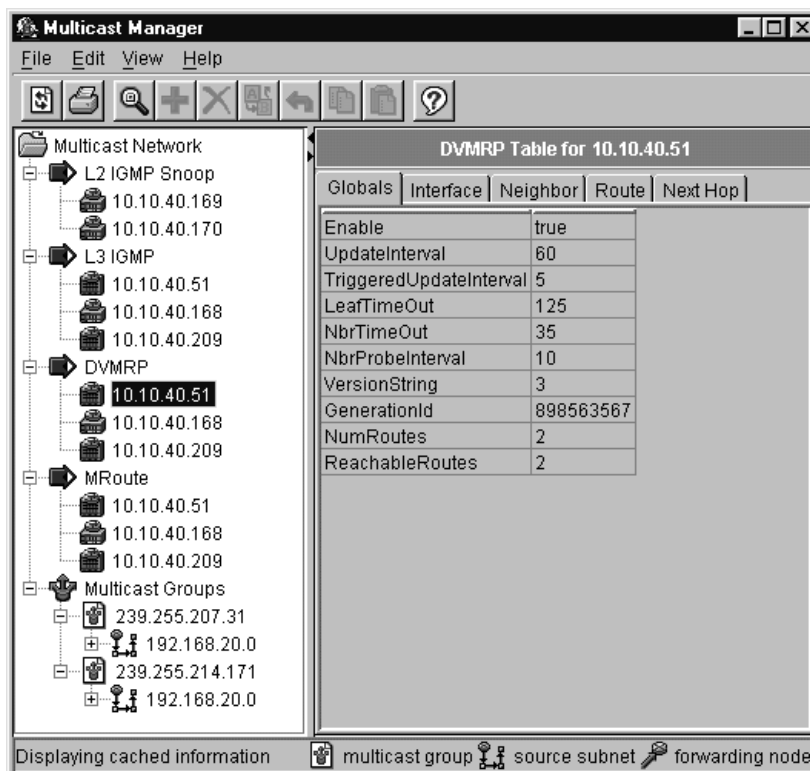
DVMRP routers listen to all IGMP host membership reports, even if they are not the designated querier, and keep a local database of every host membership reporter.

Passport 1000 Series switches and Passport 8600 switches support DVMRP.

To view DVMRP information:

➔ Select a device listed under the DVMRP folder.

The DVMRP table opens with the Globals tab displayed in the contents pane (Figure 68).

Figure 68 DVMRP Table

The DVMRP Table contains five tabs that display DVMRP information:

- [Globals tab](#) (next)
- [Interface tab](#) (page 148)
- [Neighbor tab](#) (page 150)
- [Route tab](#) (page 151)
- [Next Hop tab](#) (page 153)

Globals tab

The Globals tab ([Figure 69](#)) displays the global DVMRP settings for the network.

Figure 69 Globals tab

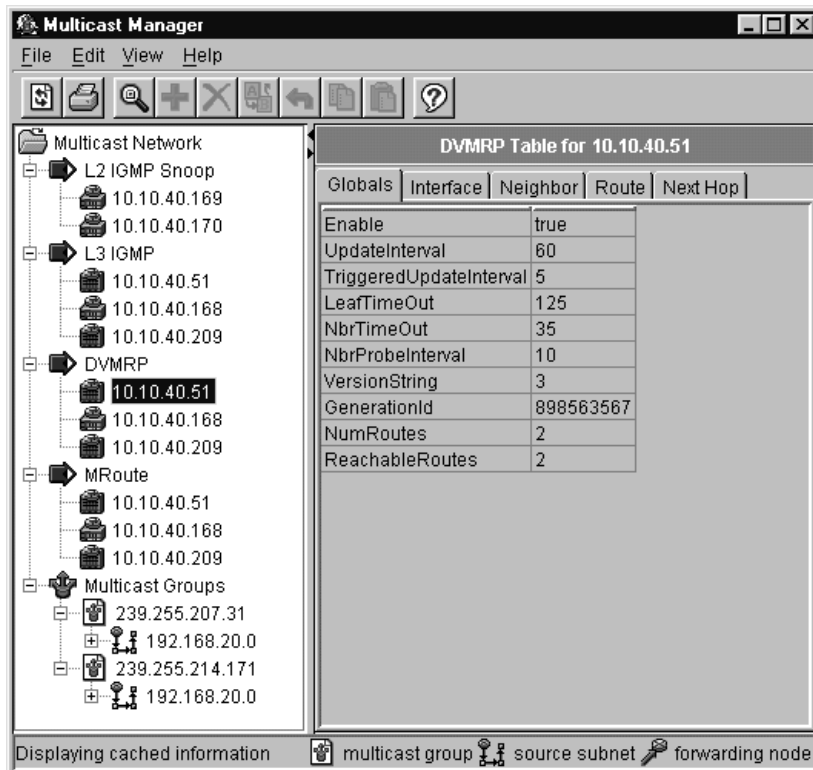


Table 47 describes the fields in the Globals tab.

Table 47 Globals tab fields

Field	Description
Enable	Whether DVMRP is enabled (true) or disabled (false) on the switch.
UpdateInterval	Periodically each multicast router advertises routing information on each DVMRP interface, using the DVMRP export message. This field shows the time interval (in seconds) between DMVRP updates. The range is from 10 to 2000 with a default of 60. In DVMRPv3, this variable is also known as the Route Report Interval.

Table 47 Globals tab fields (continued)

Field	Description
TriggeredUpdateInterval	Triggered updates are sent when routing information changes. This value is the amount of time (in seconds) between triggered update messages. The range is from 5 to 1000 with a default value of 5. In DVMRPv3, this variable is also known as the Minimum Flash Update Interval.
LeafTimeOut	When DVMRP advertises a route on an interface, it waits a period of time for a DVMRP neighbor to respond positively. If no neighbor responds in the given time, the router considers the network attached to the interface to be a leaf network. The leaf timer shows you how long (in seconds) the router waits for a response from a neighbor. The range is from 25 to 4000 with a default value of 200.
NbrTimeOut	The neighbor report timer specifies how long (in seconds) the router waits to receive a report from a neighbor before considering the connection inactive. The range is from 35 to 8000 with a default of 140.
NbrProbeInterval	How often the DVMRP router sends probe messages on its interfaces. The range is 5 to 30 seconds with a default of 10.
VersionString	The router's DVMRP version information.
GenerationId	Used by neighboring routers to detect whether a reset or disable/enable DVMRP action has occurred to the switch or to a particular interface. If so, the router resends the entire multicast routing table to its neighbor immediately, instead of waiting for the next scheduled update.
NumRoutes	Number of entries in the routing table. You can use this information to monitor the routing table size to detect illegal advertisements of multicast routes.
ReachableRoutes	Number of entries in the routing table with noninfinite metrics. You can use this number to detect network partitions by observing the ratio of reachable routes to total routes.

Interface tab

The DVMRP Interface tab ([Figure 70](#)) displays information about the interfaces with DVMRP enabled.

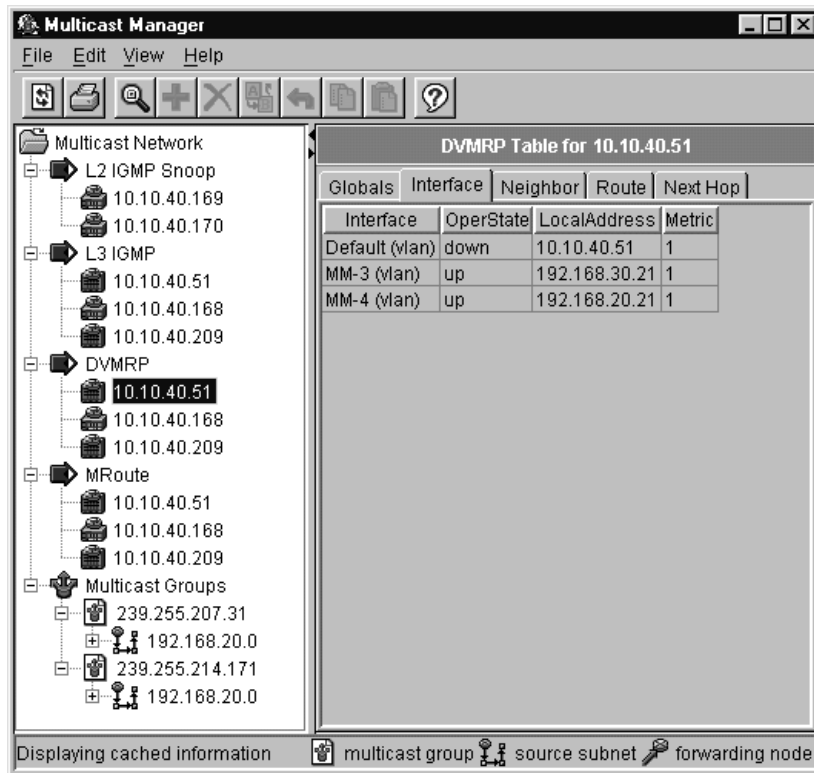
Figure 70 Interface tab (DVMRP) fields

Table 48 describes the fields in the Interface tab.

Table 48 Interface tab—DVMRP fields

Field	Description
Interface	The DVMRP interface, slot/port number or VLAN identification.
OperState	Current operational state of this DVMRP interface (up or down).
LocalAddress	IP address of the DVMRP router interface.
Metric	The distance metric for this interface, used to calculate distance vectors. The range is 1 to 31. The default value is 1, which means local delivery only.

Neighbor tab

The Neighbor tab (Figure 71) displays the DVMRP neighbors, which are the multicast routers that have an interface on the same network.

Figure 71 Neighbor tab

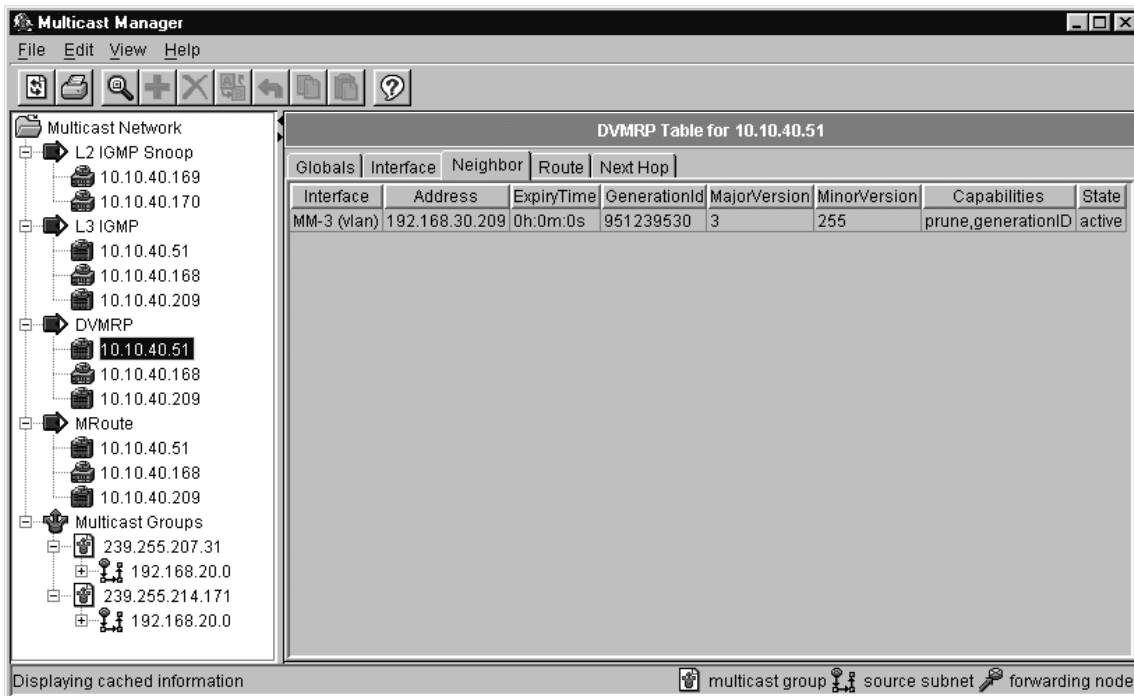


Table 49 describes the fields in the Neighbor tab.

Table 49 Neighbor tab fields

Field	Description
Interface	The DVMRP slot/port number or the virtual interface (VLAN) used to reach this DVMRP neighbor.
Address	IP address of the DVMRP neighbor for which this entry contains information.
ExpiryTime	Time remaining before this DVMRP neighbor is aged out.
GenerationId	Neighboring router's generation ID number.

Table 49 Neighbor tab fields (continued)

Field	Description
MajorVersion	Neighboring router's major DVMRP version number.
MinorVersion	Neighboring router's minor DVMRP version number.
Capabilities	Neighboring router's capabilities. The probe flag is 1 byte long with the lower 4 bits containing the following information: <ul style="list-style-type: none"> • The leaf bit (0) indicates that the neighbor has only one interface with neighbors. • The prune bit (1) indicates that the neighbor supports pruning. • The generationID bit (2) indicates that the neighbor sends its generation ID in probe messages. • The mtrace bit (3) indicates that the neighbor can handle mtrace requests.
State	State of neighbor adjacency: <ul style="list-style-type: none"> • oneway—The switch sees a packet from the neighbor but no adjacency has been established. • active—Adjacency exists in both directions. • ignoring—The switch ignores neighbor packets. • down—The interface is not enabled.

Route tab

The DVMRP Route tab ([Figure 72](#)) shows the table of routes learned through DVMRP route exchange.

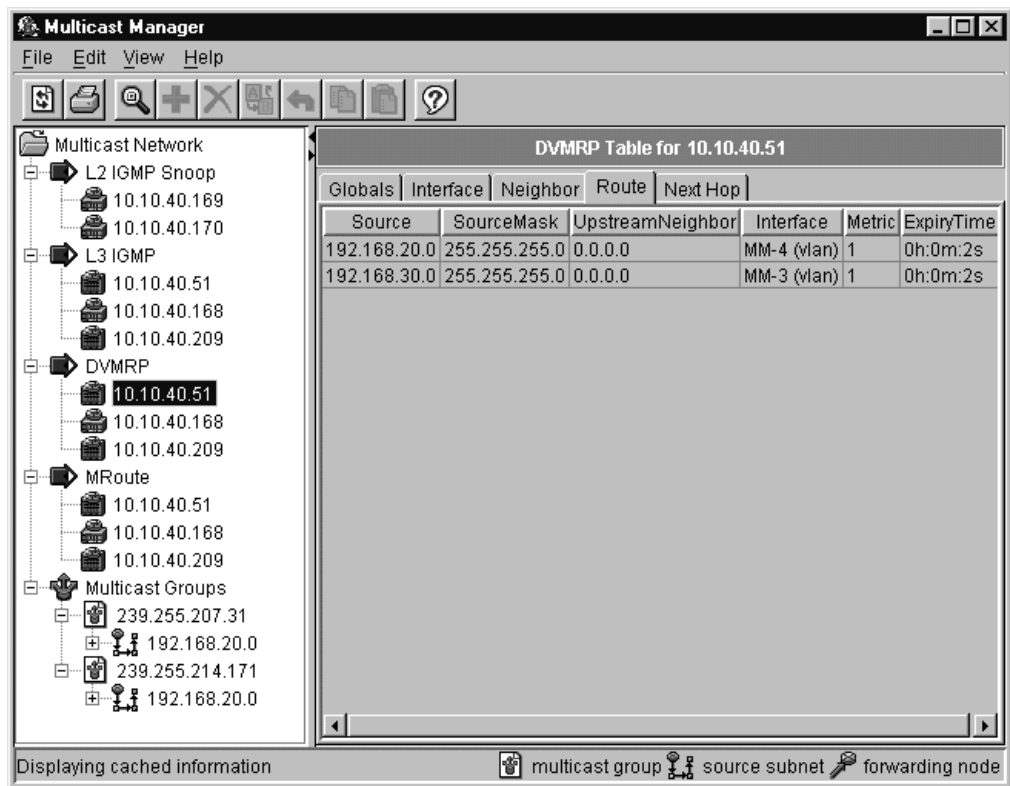
Figure 72 Route tab (DVMRP)

Table 50 describes the fields in the Route tab.

Table 50 Route tab (DVMRP) fields

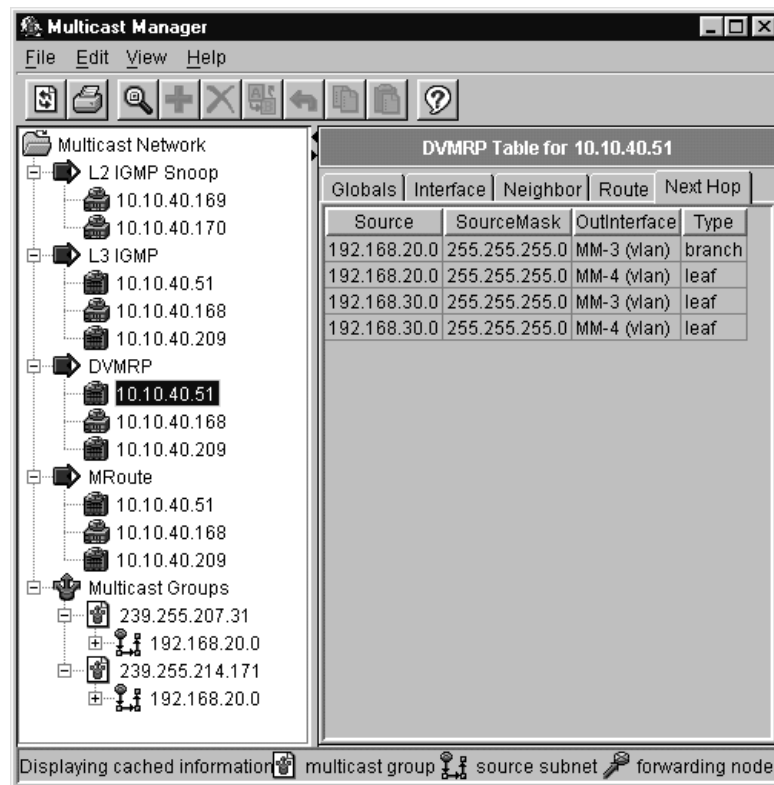
Field	Description
Source	The network address that, when combined with the corresponding route SourceMask value, identifies the sources for which this entry contains multicast routing information.
SourceMask	The network mask that, when combined with the corresponding route Source value, identifies the sources for which this entry contains multicast routing information.
UpstreamNeighbor	Address of the upstream neighbor (in other words, the RPF neighbor) from which IP datagrams from these sources are received, or 0.0.0.0 if the network is local.

Table 50 Route tab (DVMRP) fields (continued)

Field	Description
Interface	DVMRP interface slot/port number or VLAN ID on which IP datagrams sent by these sources are received.
Metric	Distance in hops to the source subnet. Range is 1 to 32.
ExpiryTime	Amount of time (in seconds) remaining before this entry is aged out.

Next Hop tab

The Next Hop tab ([Figure 73](#)) displays the next hop on outgoing interfaces for routing IP multicast datagrams.

Figure 73 Next Hop tab

[Table 51](#) describes the fields in the Next Hop tab.

Table 51 Next Hop tab fields

Field	Description
Source	The network address that, when combined with the corresponding next hop SourceMask value, identifies the source for which this entry specifies a next hop on an outgoing interface.
SourceMask	The network mask that, when combined with the corresponding next hop Source value, identifies the source for which this entry specifies a next hop on an outgoing interface.
OutInterface	DVMRP interface slot/port number or VLAN ID for the outgoing interface for this next hop.
Type	The type is: <ul style="list-style-type: none">• leaf if <i>no</i> downstream dependent neighbors exist on the outgoing virtual interface• branch if downstream dependent neighbors <i>do</i> exist on the outgoing virtual interface.

Viewing MRoute information

Multicast Route (MRoute) information contains the details about the multicast routes found in the network.

To view Multicast Route information:

- ➔ Select a device listed under the MRoute folder.

The MRoute table opens with one tab, the Route tab, displayed.

Route tab

The Route tab ([Figure 74](#)) lists multicast route information.

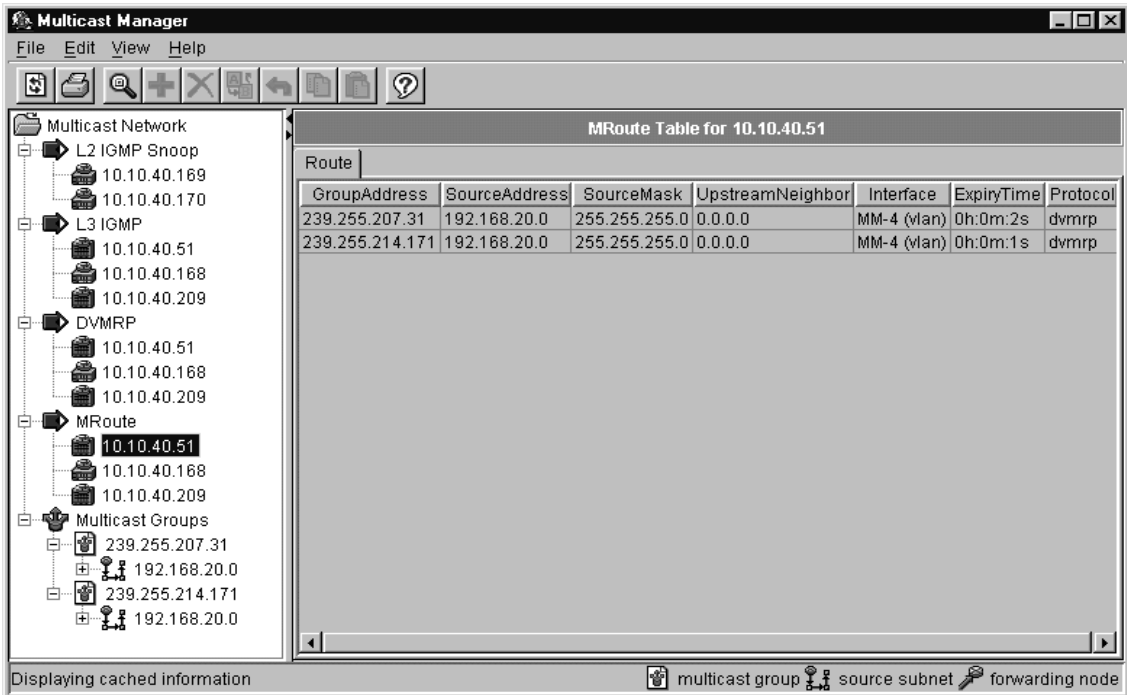
Figure 74 Route tab (MRoute)

Table 52 describes the fields in the Route tab.

Table 52 Route tab (MRoute) fields

Field	Description
GroupAddress	IP multicast group address for which this entry contains multicast routing information.
SourceAddress	Network address that, when combined with the corresponding route SourceMask value, identifies the sources for which this entry contains multicast routing information.
SourceMask	Network mask that, when combined with the corresponding route Source value, identifies the sources for which this entry contains multicast routing information.
UpstreamNeighbor	Address of the upstream neighbor (in other words, the RPF neighbor) from which IP datagrams from these sources to this multicast address are received or 0.0.0.0 if the network is local.

Table 52 Route tab (MRoute) fields (continued)

Field	Description
Interface	DVMRP interface slot/port number or VLAN ID on which IP datagrams sent by these sources to this multicast address are received.
ExpiryTime	Amount of time remaining before this entry is aged out. The value 0 indicates that the entry is not subject to aging.
Protocol	Routing protocol through which this route was learned. Currently only DVMRP is supported.

Viewing Multicast Groups information

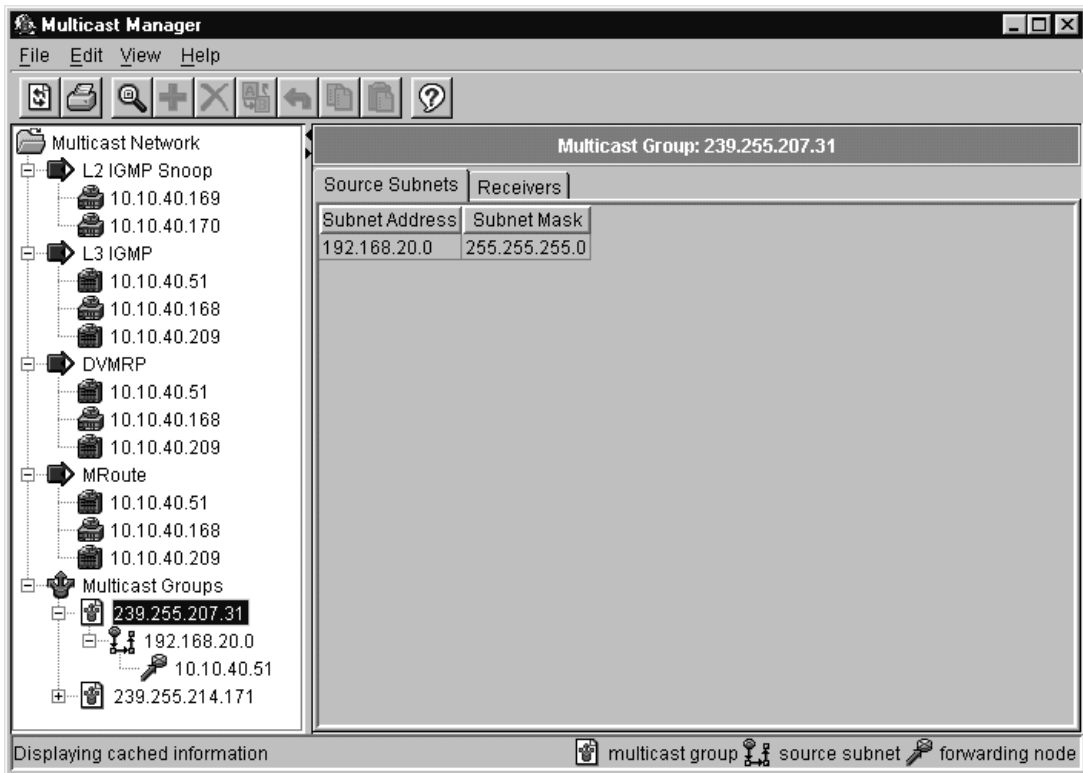
Multicast Group information contains details about multicast groups with active members, including their multicast group address, source subnet, and last reporter.

To view Multicast Group information:

- ➔ Select a multicast address listed under the Multicast Groups icon.

The Multicast Group table opens with the Source Subnets tab displayed in the contents pane ([Figure 75](#)).

Figure 75 Multicast Group table



The Multicast Group table contains two tabs that display multicast information:

- [Source Subnets tab](#) (next)
- [Receivers tab](#) (page 159)

Source Subnets tab

Multicast traffic must travel through source subnets to reach either forwarding devices or multicast receivers.

The Source Subnets tab ([Figure 76](#)) displays the source subnet address and subnet mask of the multicast group address.

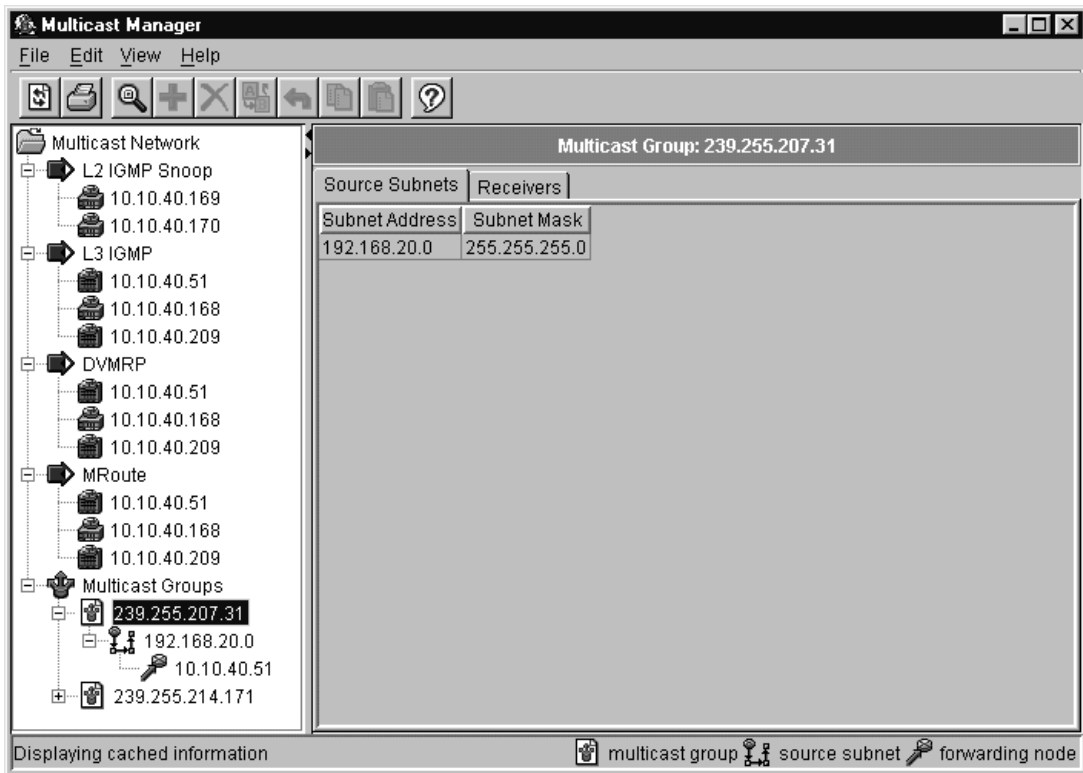
Figure 76 Source Subnets tab

Table 53 describes the fields in the Source Subnets tab.

Table 53 Source Subnets tab fields

Field	Description
SubnetAddress	Network address that, when combined with the corresponding SubnetMask value, identifies the source multicast address.
SubnetMask	Network mask that, when combined with the corresponding SubnetAddress value, identifies the source multicast address.

Receivers tab

The Receivers tab (Figure 77) displays the addresses of the last reporters for the active multicast group.

Figure 77 Receivers tab (Multicast Groups)

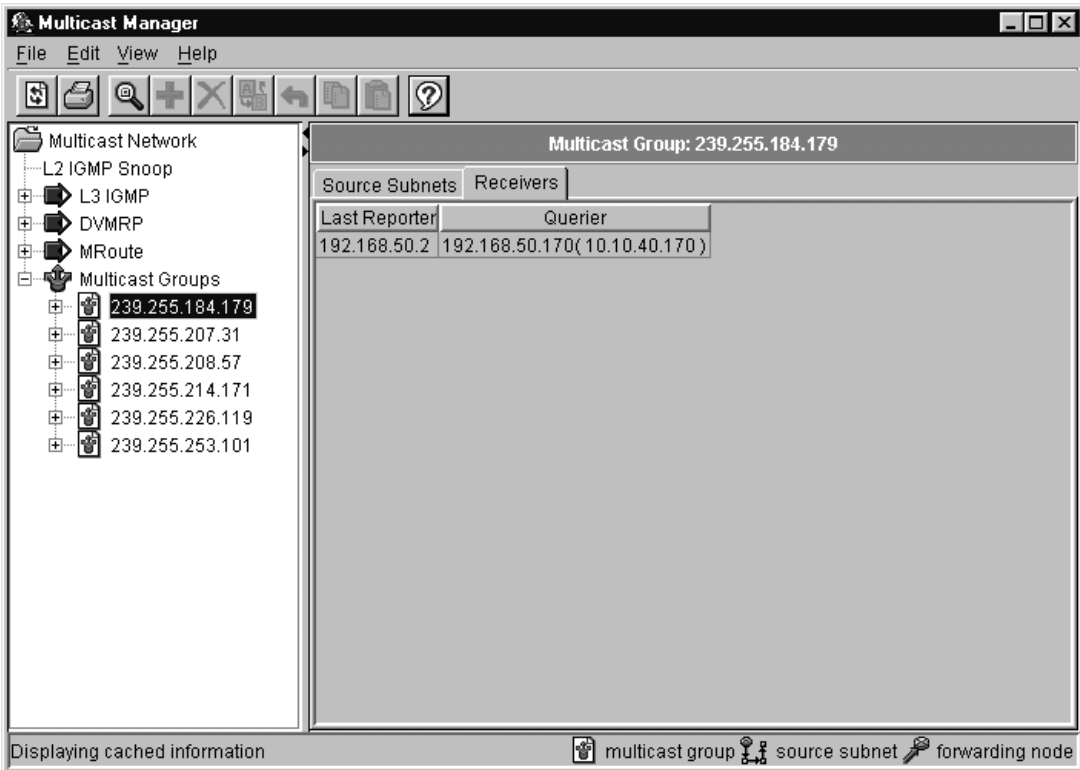


Table 54 describes the fields in the Receivers tab.

Table 54 Receivers tab (Multicast Groups) fields

Field	Description
LastReporter	IP address of the source of the last membership report received for this IP multicast group address on this interface. If no membership report has been received, the object has the value 0.0.0.0.
Querier	Address of the IGMP querier on the IP subnet to which the interface is enabled. The address in parentheses is the forwarding node.

Viewing Multicast Manager information in Optivity Switch Manager

While the Multicast Manager window is open, you can highlight the following information on the topology map in the Optivity Switch Manager main window:

- Location of a particular multicast devices
- Multicast forwarding path from a source subnet to a multicast node
- Devices actively using a selected multicast protocol

Highlighting a multicast device

To highlight a multicast device:

- 1 In the Multicast Manager navigation pane, do one of the following:
 - Select a protocol icon.
 - Select a single device.

Devices supported by the protocol are highlighted.

- 2 From Multicast Manager menu bar, choose View > Highlight Topology.

The Highlight Topology option remains selected until you deselect it.

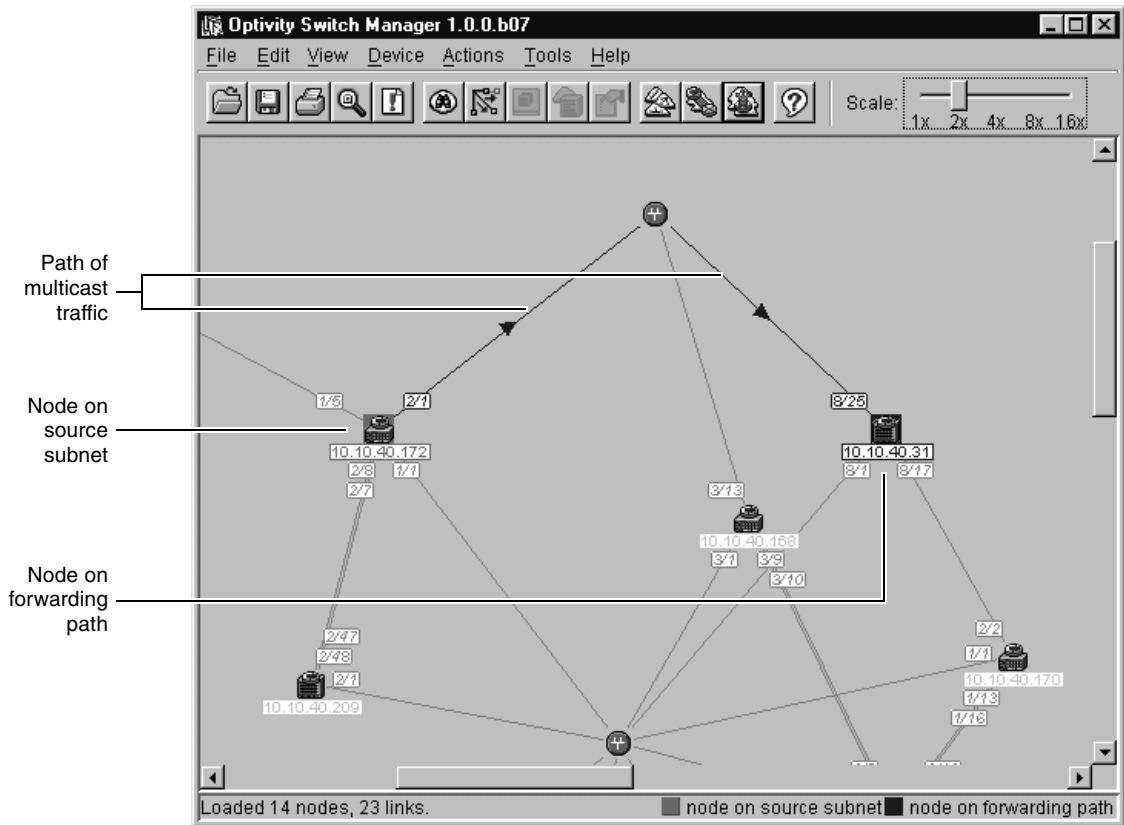
However, if you select a multicast group in the navigation pane, this option is not available.

- 3** Return to the Optivity Switch Manager window.
 - If a protocol icon was selected, all devices supported by the protocol are highlighted.
 - If a single device was selected, the device is highlighted.

Highlighting a multicast forwarding path

To highlight a multicast forwarding path from a source subnet to a multicast node within a multicast group:

- 1** In the Multicast Manager navigation pane, select a forwarding node under a multicast group and source subnet that you want to view, or select a source subnet under a multicast group.
- 2** From Multicast Manager menu bar, choose View > Highlight Topology.
- 3** Return to the Optivity Switch Manager window.
 - If a forwarding node was selected, the devices and a single forwarding path are highlighted ([Figure 78](#)).
 - If a source subnet folder was selected, the devices and all forwarding paths coming out of a source are highlighted.

Figure 78 Optivity Switch Manager with forwarding node highlighted

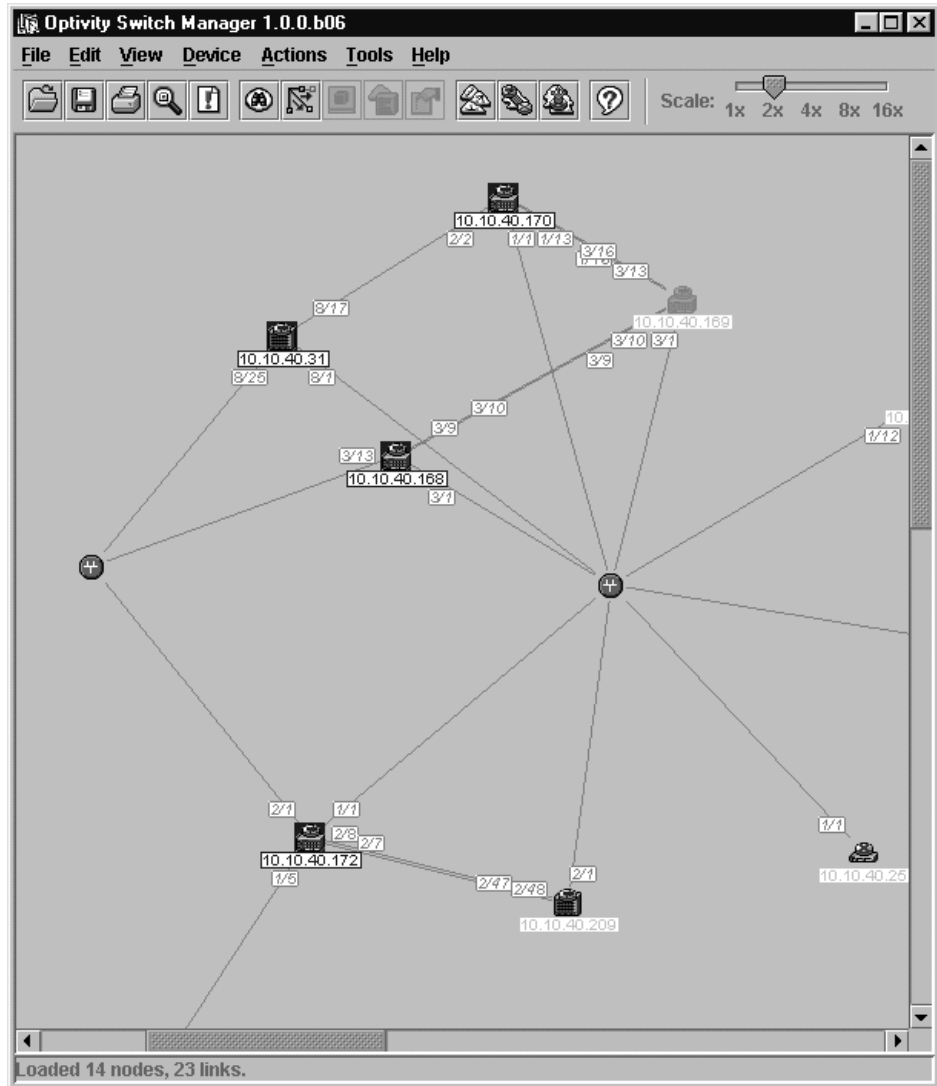
You can also select a multicast protocol in Multicast Manager and view in Optivity Switch Manager the devices that are actively using that protocol.

To view devices using multicast protocols:

- 1 In the Multicast Manager navigation pane, select a multicast protocol from the first four branches in the tree.
- 2 Return to the Optivity Switch Manager window.

The devices using DVMRP are highlighted (Figure 79).

Figure 79 Optivity Switch Manager window with devices using DVMRP highlighted



Chapter 7

Using Log Manager

Log Manager allows you to open log files that are transferred from a network device. The log file is a file saved on the flash memory of a device. You can use the log file content (displayed in ASCII format) to analyze any activity written to the log file that may be of potential concern.



Note: Log files and Optivity Switch Manager must reside on the same management station.

This chapter includes information about the following topics:

- [Uploading Passport syslog files to your management station \(next\)](#)
- [Starting Log Manager \(page 170\)](#)
- [Opening a syslog file \(page 171\)](#)
- [Exporting a log file \(page 174\)](#)
- [Locating specific log entries \(page 174\)](#)
- [Filtering log entries \(page 176\)](#)

Uploading Passport syslog files to your management station

This section describes how to upload Passport 8000 Series (version 3.0 and higher) syslog files to your management station. The procedure here illustrates the general principles of the upload process for all switches. For specific details of using Device Manager or the CLI on other switches, refer to the Device Manager and CLI reference guides for those switches.



Note: To upload syslog files, you must have a TFTP server installed on the management station.

You can upload Passport 8000 Series syslog files to your management station using the FileSystem dialog box in Device Manager or using the command line interface (CLI). For more information about using Device manager or the CLI, refer to the reference guides for Device Manager and the CLI listed in [“Related publications” on page 18](#).

Uploading a file using Device Manager

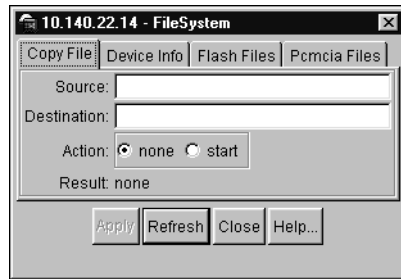


Note: The Passport 1000 Series does not support this feature.

To upload a Passport 8000 Series syslog file using Device Manager:

- 1 From the Device Manager menu bar, choose Edit > File System.

The FileSystem dialog box opens with the Copy File tab displayed ([Figure 80](#)).

Figure 80 Copy File tab

- 2 Enter the source address of the syslog file.
- 3 Enter the destination address of the syslog file.
- 4 Select the start radio button.
- 5 Click Apply.

Uploading a file using the CLI

If remote access to the CLI is enabled for a switch, you can access the CLI remotely to upload files. This section describes how to use Telnet to access the CLI and copy a file to your management station.

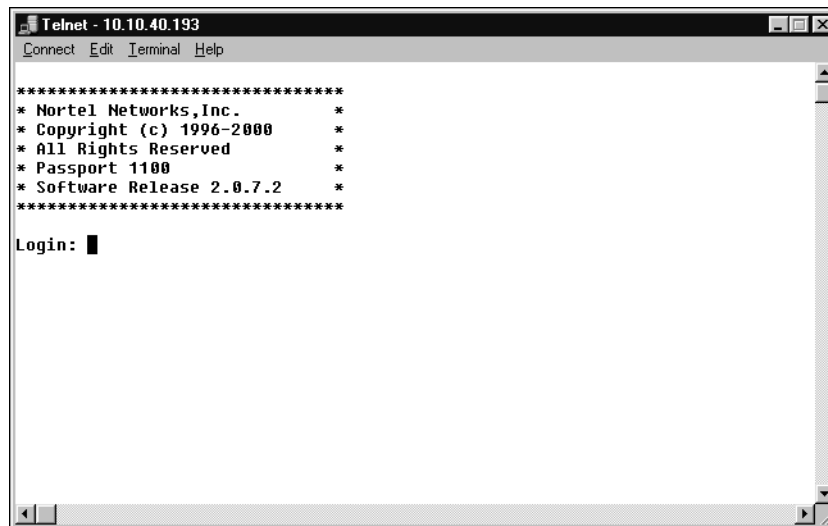
You can initiate a Telnet session from [Device Manager](#) or you can use [Telnet](#) software installed on your management station. After the Telnet session is active, you log on to the switch and use the **copy** command to upload the file.

Initiating a Telnet session from Device Manager

To initiate a Telnet session from Device Manager:

- 1 On the Device Manager toolbar, click the Telnet icon.

The Telnet dialog box opens showing the CLI login prompt for the selected switch ([Figure 81](#)).

Figure 81 Telnet dialog box

- 2 To begin your Telnet session, enter your login name and password, for example:

Login: rwa

Password: *** (rwa)

Using the Telnet application

To initiate a Telnet session using the Telnet application:

- 1 Launch your Telnet application.
- 2 From the menu bar, click Connect.
- 3 Do one of the following:
 - Select an IP address from the displayed list.
 - Choose Remote System and enter an IP address.

The Telnet window displays the CLI login prompt for the selected switch (Figure 82).

Figure 82 Telnet window

```
*****
* Nortel Networks, Inc.          *
* Copyright (c) 1996-2000       *
* All Rights Reserved           *
* Passport 8010                  *
* Software Release _B047        *
*****

Login:
```

- 4** To begin the Telnet session, enter your login name and password, for example:

```
Login: rwa
Password: *** (rwa)
```

When you have accessed the CLI, you use the **copy** command to [upload the file](#).

Uploading the syslog file

To use the copy command to upload a file:

➔ Enter:

```
copy <srcfile> <destfile>
```

where:

srcfile is the file name or number of the source file in flash, pcmcia, config, nvram, tftp, or trace.

destfile is the file name and path, including the IP address of the management station.

For example, the following command copies a syslog file to the management station located at IP address 10.170.137.105:

```
copy /pcmcia/syslog.txt 10.170.137.105:syslog.txt
```

Passport/Accelar 1000 Series switches (version 2.x)

To upload a Passport/Accelar 1000 Series syslog file to your management station, use the CLI **copy** command as described in the CLI reference guide that was shipped with the switch.

For example, the following CLI command and prompt sequence copies a syslog file to the management station located at IP address 10.170.137.10:

```
Passport-1200# copy f t  
  
Enter destination tftp server address [10.170.137.105]:  
  
Enter destination file [syslog]: syslog  
  
tftp starting ... Press any key to abort the operation.  
  
tftp result: success
```

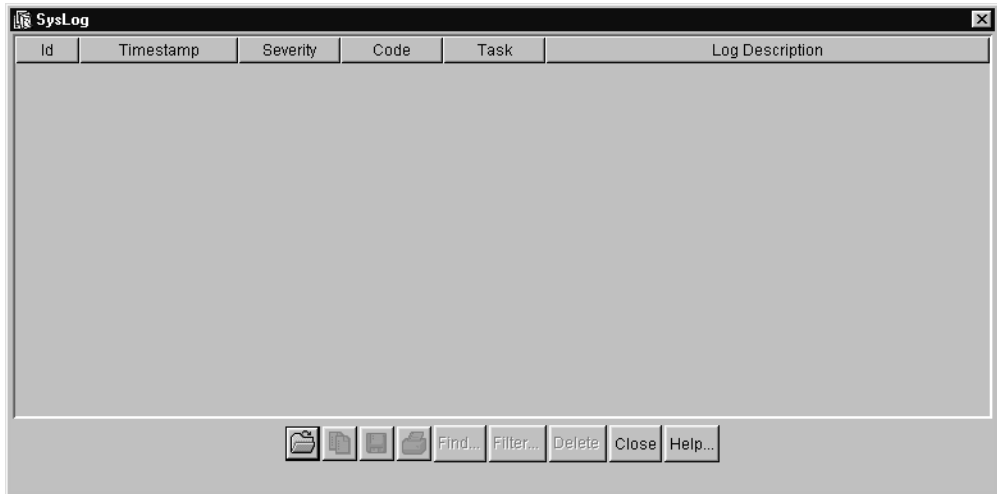
Starting Log Manager

To start Log Manager:

➔ Do one of the following:

- From the Optivity Switch Manager menu bar, choose Actions > Log Manager.
- On the Optivity Switch Manager toolbar, click Log Manager.

The SysLog dialog box opens ([Figure 83](#)). Until you open a syslog file, the dialog box does not contain any log file information.

Figure 83 SysLog dialog box

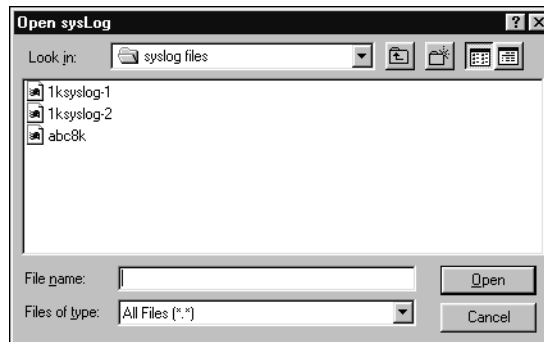
Opening a syslog file

To open a syslog file:

- 1 In the SysLog dialog box, click the folder icon.



The Open sysLog dialog box opens ([Figure 84](#)).

Figure 84 Open sysLog dialog box

- 2 In the File name text box, type the name of the log file to import, or use the Browse button to locate the log file.
- 3 Click Open.

The log file is imported into the SysLog dialog box (Figure 85).

Figure 85 Imported log file in SysLog dialog box

Id	Timestamp	Severity	Code	Task	Log Description
1	00:00:02:233	INFO	0x0	rcStart	System boot
2	00:00:02:500	INFO	0x0	rcStart	Passport System Software Release (unknown)
3	00:00:02:766	INFO	0x0	rcStart	System log file flash:syslog:0:2
4	00:00:04:433	INFO	0x0	rcStart	INTERPRET FOLLOWING TIMESTAMPS AS ACTUAL DATES
5	04/20/2000 05:30:20	INFO	0x0	rcStart	Card Inserted: Slot#=1, Serial#=5724, Version=v5.0
6	04/20/2000 05:30:21	INFO	0x0	rcStart	Card Inserted: Slot#=3, Serial#=HB0B4, Version=v5.0
7	04/20/2000 05:30:27	INFO	0x0	rcStart	Global filters are not supported in this release.
8	04/20/2000 05:30:27	INFO	0x0	rcStart	System is ready
9	04/20/2000 05:30:29	INFO	0x0	tTrapd	Link Up(1/1)
10	04/20/2000 05:30:29	INFO	0x0	tTrapd	Link Up(1/2)
11	04/20/2000 05:30:30	INFO	0x0	tTrapd	Link Up(1/3)
12	04/20/2000 05:30:30	INFO	0x0	tTrapd	Link Up(1/4)
13	04/20/2000 05:30:31	INFO	0x0	tTrapd	Link Up(1/5)
14	04/20/2000 05:30:31	INFO	0x0	tTrapd	Link Up(1/6)
15	04/20/2000 05:31:02	INFO	0x0	tTrapd	Spanning Tree Topology Change(Stgld=1, PortNum=1/2)
16	04/20/2000 05:31:02	INFO	0x0	tTrapd	Spanning Tree Topology Change(Stgld=1, PortNum=1/5)
17	04/20/2000 05:31:12	INFO	0x0	tTrapd	Sending Cold-Start Trap

435 row(s)





The SysLog dialog box includes some buttons that are the same as those available on the toolbar of Optivity Switch Manager and the other submanagers. For information about these common buttons, refer to [Table 5 on page 36](#).

[Table 55](#) describes the items and buttons that are specific to the SysLog dialog box.

Table 55 SysLog dialog box items and buttons

Item or button	Description
Id	The number assigned to the log entry.
Timestamp	The time the entry entered the log.

Table 55 SysLog dialog box items and buttons (continued)

Item or button	Description
Severity	<p>The severity level of the log entry. The possible severity levels are:</p> <ul style="list-style-type: none"> • Info—Informational message only • Warning—There may be a misconfiguration in the network, but you do not need to take action. • Error—There is a misconfiguration that you must correct for the device to work correctly. • MFG—There is a manufacturing error that you must correct for the device to work correctly. • Fatal—This fault caused the switch to fail. • blank
Code	Maps errors. For example, the code error 0x1ff0009 means block unauthorized map access of code that represents log description.
Task	The system-assigned name of the task that generated the log entry.
Log Description	A description of the log entry.
	Locates specific entries in the log file. See “Locating specific log entries” on page 174 .
	Selects specific entries to display in the log file (eliminating, or filtering out, all other entries from the log). See “Filtering log entries” on page 176 .
	Deletes an entry from the log file. To delete multiple log entries, highlight all the log entries to delete before clicking this icon.
	Closes the SysLog dialog box.

Exporting a log file

To export a log file to the hard drive of your management station:

- 1 In the device view, click the diskette icon.



The Export sysLog dialog box opens (Figure 86).

Figure 86 Export sysLog dialog box



- 2 In the File name text box, type a name for your file, for example, syslog2.txt.
- 3 Click Save.

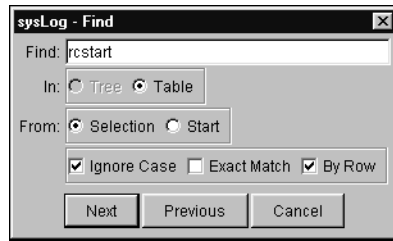
Locating specific log entries

You can locate specific log entries in Log Manager. For example, you can locate all entries containing a specified string without eliminating non-related table entries.

To locate specific log entries:

- 1 In the device view, click Find.

The sysLog - Find dialog box opens (Figure 87).

Figure 87 sysLog - Find dialog box

- 2 In the Find field, type the type the string you want to search for, for example, Fatal.
- 3 In the From field, check Selection (finds the first occurrence of your selection from your current position in the table) or Start (selects the first occurrence of your selection in the table).
- 4 Choose one or more of the following:
 - Ignore Case, to ignore upper and lower case in the Find field
 - Exact Match, to (match the string exactly as you typed it in the Find field
 - By Row, to search by row or column. If By Row is deselected, the search is automatically by column.
- 5 Click Next.

The fields containing matching strings are displayed in the SysLog dialog box.
- 6 To proceed to the next field, in the syslog - Find dialog box, click Next.

The next field is located and displayed in the SysLog dialog box.
- 7 To return to the previous field, in the syslog - Find dialog box, click Previous.

The previous field with a matching string is located and displayed in the SysLog dialog box.
- 8 To close the sysLog - Find dialog box, click Cancel.

Filtering log entries

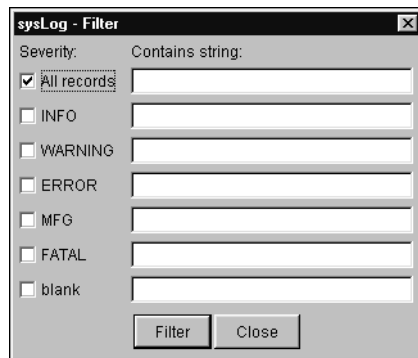
In Log Manager, you can display specific log entries by filtering out (removing) non-related log entries.

To display specific log entries:

- 1 In the device view, click Filter.

The sysLog - Filter dialog box opens (Figure 88).

Figure 88 sysLog - Filter dialog box



- 2 In the Severity column, check the type of log entry or log entries to search for:

- All records
- INFO
- WARNING
- ERROR
- MFG
- FATAL
- blank

You can choose more than one type of log entry.

Table 55 lists the severity level descriptions. If you choose blank, Log Manager filters for log entries that contain a blank field.

- 3 To narrow your search, type a character string that is part of the log description in the “contains string” field of your selected row(s).
- 4 Click Filter.

- 5** The SysLog dialog box displays only the entries that satisfy the filtering criteria.
- 6** To restore all log entries in the SysLog dialog box:
 - a** Select only “All records” in the severity column.
 - b** Type “empty string”/”blank string” in the Contains string text box.
 - c** Click Filter.
- 7** To close the sysLog - Filter dialog box, click Close.

Appendix A

Additional reference sources

For more information about networking concepts, protocols, and topologies, you may want to consult the following sources:

- RFC 1058 (RIP version 1)
- RFC 1723 (RIP version 2)
- RFC 1213 (IP)
- RFC 1389 (RIP 2 Management Information Base)
- RFC 1493 (Bridge MIB)
- RFC 1573 (IANAIf Type)
- RFC 1643 (Ether-like MIB)
- RFC 1757 (RMON)
- RFC 1271 (RMON)
- RFC 1850 (OSPF MIB)
- RFC 1253 (OSPF)
- RFC 1583 (OSPF)
- RFC 2178 (OSPF)
- IEEE 802.1D (Standard for Spanning Tree Protocol)
- IEEE 802.3 (Ethernet)
- IEEE 802.1Q (VLAN Tagging)

Appendix B

Troubleshooting and error messages

Resolving problems

[Table 56](#) describes common Optivity Switch Manager problems and solutions.

Table 56 Optivity Switch Manager problems and solutions

Problem	Solution
Optivity Switch Manager does not display all network devices in the topology map.	<ul style="list-style-type: none"> • Use the <code>ping</code> command to verify that the network device is connected. • Choose Edit > Preferences, and verify that the Automatically Relayout after discovery check box is selected in the Map section. • Increase the maximum hop count in the Preferences dialog box.
Some devices have timed out.	<p>View the error log to determine if the timeout is due to the following, and take the recommended action:</p> <ul style="list-style-type: none"> • Invalid read-community string—add the correct community in the Edit Communities dialog box. • Slow network—Increase the retry count in the SNMP section of the Edit Preferences dialog box. • NMS socket overflow—Set the Max Outstanding Requests in the SNMP preferences section of the Edit Preferences dialog box.

Error messages

[Table 57](#) describes Optivity Switch Manager messages and their meanings.

Table 57 Optivity Switch Manager error messages

Message	Meaning
Discrepancies were found, see View > Audit	The submanager can still function, but it has found discrepancies between nodes. From the submanager menu bar, choose View > Audit to view the Audit dialog box.
Bad Assignment	You attempted to edit a read-only item.

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